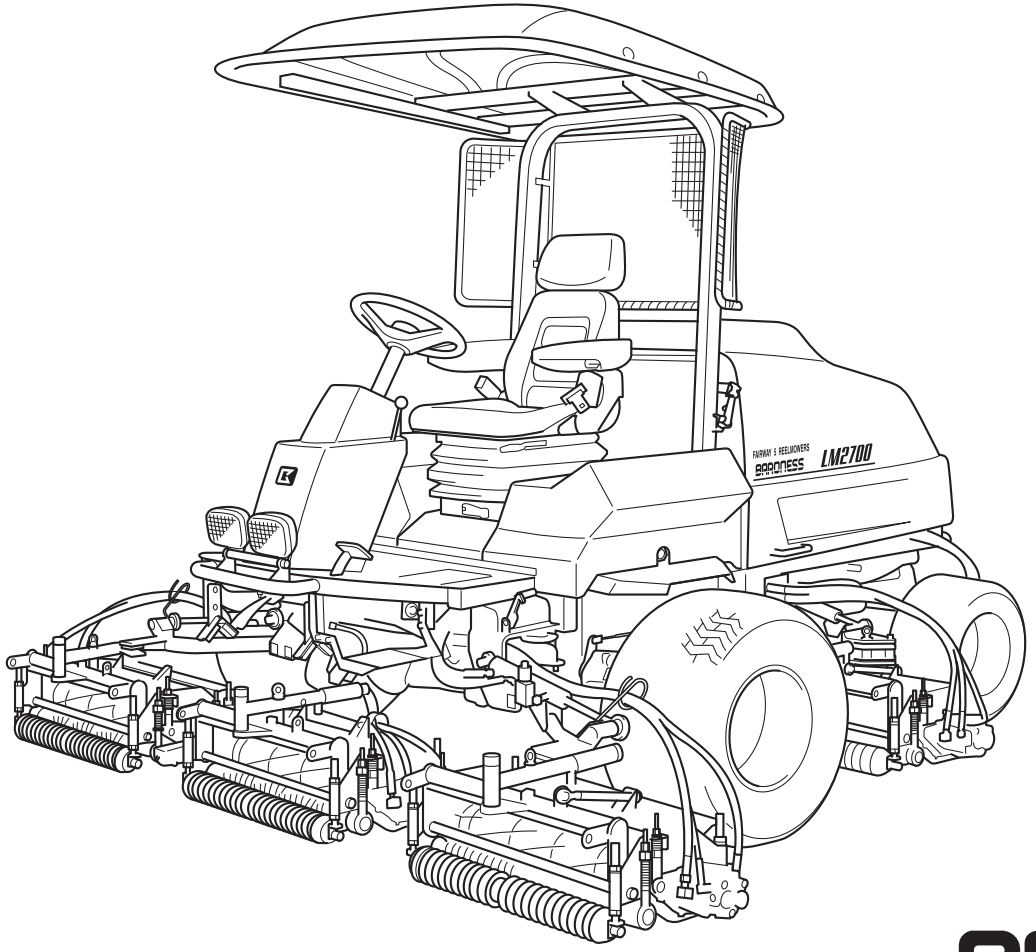
Front 5-reel Fairway mower

LM2700

BARONESS® MOWER

Operator's manual Ver.1.0

LM2700 (22/26) SN10348 and onwards



"Required reading" Read this manual and the owner's manual for the engine before using the machine.

BARONESS®

Original Instructions

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California Proposition 65

⚠ WARNING ⚠

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Introduction

Thank you for purchasing the Baroness LM2700, front 5-reel fairway mower.

This operator's manual describes the correct methods for handling, adjusting, and checking the machine for those who do the mowing operation of a golf course. Be sure to read this manual and make sure that you understand its contents thoroughly before using the machine.

Our machines have been tested and inspected thoroughly before shipment from the factory.

However, whether the machine can display its original performance depends on the handling method, as well as daily checks, adjustments, and lubrication before and after operation.

Keep the machine well maintained to expect safe operation and excellent performance for an extended period of time.

Note

- Gradual changes may be made to the machine.
  When making enquiries about the machine, be sure to specify both the model type and serial number.
- The information described in this manual may change without prior notice.

⚠ Caution • • • About operation

- The warning labels that are attached to the machine and used in this manual contain information to maintain safety. Please read the operating procedures and safety precautions carefully and only operate the machine after you have understood them completely.
- The warning labels and their descriptions should be preserved in their entirety. If they are lost or damaged, please replace them immediately with new ones.
- Do not, under any circumstances, remove the warning labels that are attached to the machine.

Introduction

Read this manual carefully to thoroughly understand the proper operating and maintenance methods of your mower, and to avoid causing injury to yourself and to others. The operator is responsible for operating this machine properly and safely.

Never perform maintenance and repair which are not explained in this manual. If a maintenance and repair is required, an engineer who has technical knowledge and understood the service manual enough should do the work.

For questions concerning maintenance or genuine parts, please contact your local Baroness dealer. When making inquiries about your mower, please specify the mower's model number and serial number.

Safety

This machine meets CEN standard EN 836:1997 (by affixing the specified label) for ride-on lawn mowers at the time of production.

Improper use or maintenance can result in injury or death. To prevent an accident, be sure to follow the safety precautions described below and always pay attention to the warning symbols. The warning symbols are displayed as CAUTION, WARNING, or DANGER, and all symbols describe important safety precautions. Failure to thoroughly follow these safety precautions can cause an accident resulting in injury or death.

Safety management

The following instructions are taken from CEN standard EN 836:1997, ISO standard 5395:1990 and ANSI B71.4-2004.

Intended uses

Use the mower for the purpose it is intended for, that is cutting grass on lawns.

Any other use could be dangerous or damage the equipment.

1. Training

- Read the Operator's manual and other training material carefully. Be familiar with the controls and safety indications and learn how to stop the mower in an emergency.
- If the operator cannot understand the manual, it is the owner's responsibility to thoroughly explain the contents of this Operator's manual.
- Never allow children to operate or service the mower. Never allow adults that are unfamiliar with the instructions to operate or service the mower. Follow the age limit specified by your country or local government.
- Never operate the machine while people, especially children, or pets are nearby.
- Keep in mind that the owner, operator, or mechanic is responsible for preventing accidents, and accidents can be abolished with the cooperation of all.
- Never carry passengers other than the operator.
- All operators and mechanics should receive proper training. The owner is responsible for training the operators and the following must be thoroughly understood.:
  - The basic safety precautions for operating ride-on mowers
  - It gets difficult to control the mower by applying the brake when it begins to slide on a slope. The main reasons it is impossible to control the mower on a slope are:
    - Insufficient tire grip
    - Driving too fast
    - Inadequate braking
    - Using a model inadequate for the job
    - Lack of awareness of the ground conditions (bumpy, icy, muddy)

2. Preparation

- Use clothing and equipment that are suitable for the job. Wear a helmet, safety glasses, and ear protectors. Long hair, loose clothing, or jewelry can get tangled in moving parts. Do not operate the mower when barefoot or wearing sandals.
- Thoroughly check that the area where the mower is to be used is free of objects that can be thrown by the mower such as rocks, toys, and wire before starting.
- Do not operate the mower under the influence of alcohol or drugs.
- **⚠ Warning**: Fuel is highly flammable. Take the following precautions:
  - Store fuel in containers specifically designed for this purpose.
  - Refuel outdoors only and do not smoke while refueling.
  - Refuel before mowing. Do not remove the fuel tank cap when the engine is running or when the engine is hot.
  - If fuel is spilled, do not start the engine. Move the machine away from the area where the fuel was spilled and avoid creating any source of ignition until the spilled fuel has completely dissipated.
  - Close the fuel tank and fuel container cap securely.
- Replace muffler when it is broken.
- Repair any sensors that are malfunctioning before operating the mower.
- Check that the seat switch and safety switch, and the safety guards and covers are installed correctly and that they function properly. Repair these parts if there is a malfunction before operating the mower.

3. Precautions during operation

- Do not start the engine in a closed space since there is a danger of carbon monoxide poisoning.
- Operate the mower during the day or in an area with sufficient lighting.
- Before starting the engine, disengage all equipment, place the gearshift into neutral, and set the parking brake. Sit on the seat and start the engine.
- Remember that there is no such thing as a safe slope. Operating on grassy slopes requires particular care. To avoid overturning:
  - Do not stop or start suddenly on any slope.
  - Reduce speed when travelling and making sharp turns on slopes.
  - Always stay alert for bumps, hollows, and other hidden obstacles.
  - Never mow across the surface of the slope unless the mower is designed to do so.
  - If noted in the manuals, use a counterbalance or wheel balance.
- Never neglect the warnings for hidden hollows or obstacles.
- Watch out for other traffic when crossing or near a road.
- Stop the rotation of the reel cutter when operating on surfaces other than grass.
- When using attachments, never direct the discharge at bystanders. Never allow anyone near the mower while it is operating.
- Do not operate the mower with damaged guards or with guards not installed properly.
- Do not remove the interlock device, and be sure to use it when it is adjusted properly.
- Do not change the engine governor setting or operate the engine at high engine speeds. Otherwise, an accident resulting in injury or death, or a malfunction can occur.
- Before leaving the operator's position:
  - Move the mower to a level surface.
  - Disconnect the power take-off (PTO) and lower the attachments.
  - Place the gearshift into neutral and set the parking brake.
  - Reduce the engine speed.
  - Stop the engine and remove the key.

Note

After operating with a heavy load, let the engine idle for 5 minutes before turning the engine off.

- Disengage the drive to each attachment except when mowing.
- Stop the engine, disengage the drive to each attachment, and remove the key under the following conditions:
  - Before refueling
  - Before removing the grass catcher
  - Before adjusting the cutting height (except when the adjustment can be made from the operator's seat)
  - Before removing blockages
  - Before checking, cleaning, or servicing the mower
  - After striking a foreign object or an abnormal vibration occurs on the mower
- When turning the engine off, close the throttle, and close the fuel valve if your model is equipped with one.
- Keep hands and feet away from the cutting units.
- Before backing up, look down and behind you to check that the path is clear and you can back up safely. Have someone guide you if it is difficult to check the area behind you.
- Reduce speed when turning or crossing roads or sidewalks, and proceed by taking extreme caution with your surroundings. Also, be sure to stop the rotation of the reel cutter.
- Take care when loading or unloading the mower onto a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.

4. Maintenance and storage

- Park the machine on the flat ground.
- Never let indisciplined person fit out the machine.
- Check that all nuts, bolts, and screws are properly tightened to ensure that the mower is always working under safe conditions.
- To prevent a fire, keep the engine, muffler, and battery areas free of excessive grease, grass, leaves, and dust.
- Check the grass catcher frequently for preventing wear or damage.
- Keep all parts of the mower in good working condition and all fasteners and hydraulic fittings tightened.
- If the fuel tank needs to be cleaned, clean it outdoors.
- Take care not to pinch your fingers etc. while making adjustments to the mower.
- For mowers equipped with multiple reel cutters, take care as rotating one reel cutter can cause other reel cutters to rotate.
- Before servicing or adjusting the mower, stop the mower, stop the cutting units, set the parking brake, turn the engine off, and remove the key (for gasoline engines, disconnect the spark plug lead). Be sure to check that each part has completely stopped operating before servicing or adjusting the mower.
- When necessary, use a jack to securely support the mower.
- Take care when removing equipment, the spring or oil pressure that have applied to it could be suddenly free.
- When servicing the mower, disconnect the battery lead. To disconnect the battery, disconnect the negative battery cable first, then the positive battery cable. To connect the battery, connect the positive battery cable first.
- When checking the reel cutters, wear gloves or wrap the reel cutters in thick cloth to avoid injury.
- Keep hands and feet away from moving parts. If possible, avoid making any adjustments while the engine is running.
- Charge the battery in a well ventilated area, away from sparks and flames. Unplug the battery charger before connecting or disconnecting it to the battery. Also, wear protective clothing and use insulated tools.
- Be sure to empty the fuel tank, and keep apart from the fire origin, when storaging the machine indoors where using spark or naked flame.
- Check the engine cool down enough, when storaging the machine in the shutted place.
- Lower the mowing unit when storaging the machine. In case to store the machine with raising the outermost #4 and #5 mowers, be sure to latch them.

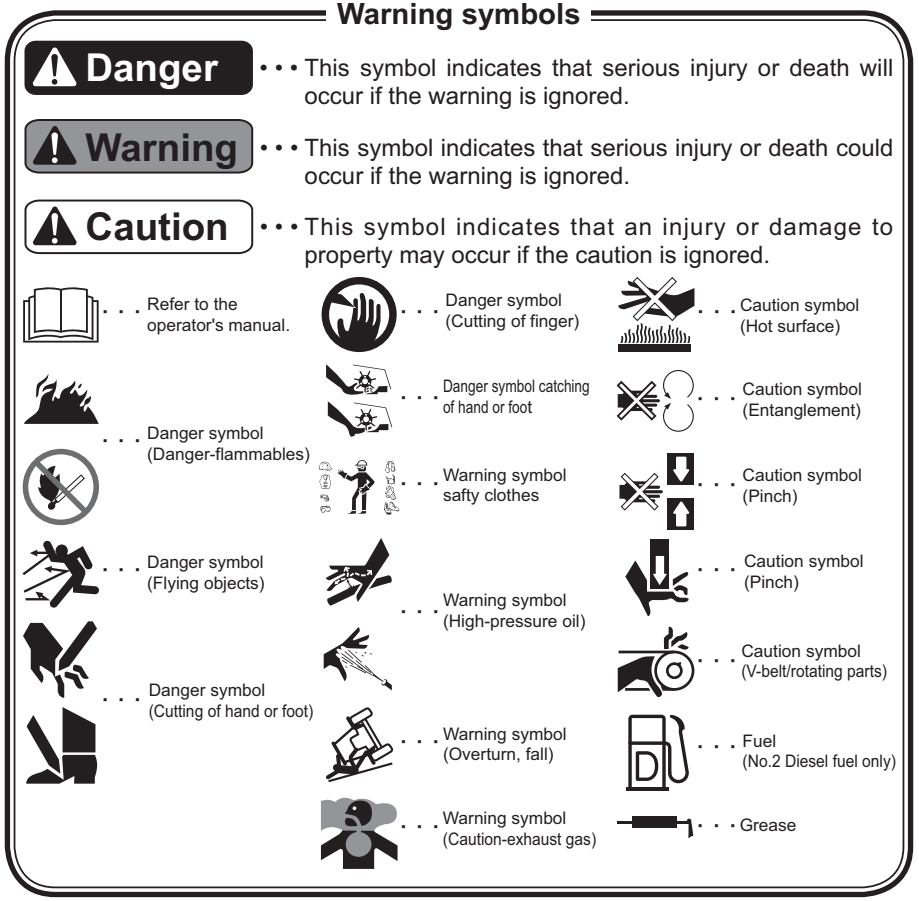
To use the Baroness mower safely

The following precautions should always be followed to operate the Baroness mower safely.

Warnings for Safety

Warning symbols ⚠ have been attached to this machine to ensure that you can operate it safely.

The warning symbols indicate items which are particularly important for your safety. It is important to always follow the warnings and operate the machine with safety.


Warning symbols
Danger
This symbol indicates that serious injury or death will occur if the warning is ignored.
Warning
This symbol indicates that serious injury or death could occur if the warning is ignored.
Caution
This symbol indicates that an injury or damage to property may occur if the caution is ignored.
Refer to the operator's manual.
Danger symbol (Danger-flammables)
Danger symbol (Flying objects)
Danger symbol (Cutting of hand or foot)
Danger symbol (Cutting of finger)
Danger symbol catching of hand or foot
Warning symbol safty clothes
Warning symbol (High-pressure oil)
Warning symbol (Overturn, fall)
Warning symbol (Caution-exhaust gas)
Caution symbol (Hot surface)
Caution symbol (Entanglement)
Caution symbol (Pinch)
Caution symbol (Pinch)
Caution symbol (V-belt/rotating parts)
Fuel (No.2 Diesel fuel only)
Grease

Be sure to observe for safe operation.

- The precautions that are described here are the important contents concerning safety. Be sure to follow these safety precautions.
- Failure to follow these precautions can cause injury or death, or accidents or damage to the machine.

* The information described in this manual may vary from the actual machine purchased.

1. General precautions

⚠ Warning

■ Do not operate the machine under the following conditions!

- If you cannot concentrate while operating the machine due to fatigue or illness, or if you are under the influence of medication
- After drinking alcohol
- If pregnant
- If less than 18 years old or untrained person

* Failure to observe these precautions can cause an unexpected accident.

■ Wear suitable clothes when operating the machine.

Do not wear a towel around your head or waist, or a scarf around your neck. Wear safety glasses, a helmet, and slip resistant shoes. Use protective gear suitable for the working conditions and do not wear loose-fitting clothes.

* Failure to observe this precaution may cause you to get caught in the machine or to slip and fall.

■ When lending the machine to others

Thoroughly explain the operating procedures and instruct them to read the "Operator's manual" before use.

* Failure to follow this precaution can cause an accident, resulting in severe injury or death, or damage to the machine.

2. Before operating the machine

⚠ Warning

■ Do not carry passengers.

The riding capacity of this machine is one person. Do not carry passengers.

* Failure to follow this precaution can cause an unexpected accident.

■ When starting the engine, be sure to be seated in the operator's seat and check your surroundings for safety.

When starting the engine, be sure to be seated in the operator's seat, check the position of the seat, and check your surroundings for safety.

* Failure to follow this precaution can cause an unexpected accident.

■ Do not drive or operate the machine or work at night.

Do not drive or operate the machine or work at night or in poor visible condition.

* Failure to follow this precaution can cause an unexpected accident.

■ Warm the engine up when it is cold.

When the engine is cold, be sure to warm it up.

* Failure to follow this precaution may not allow the machine to sufficiently demonstrate its performance capability.

⚠ Caution

■ Take precaution with a hot muffler/exhaust pipe.

Do not touch the muffler/exhaust pipe while operating the machine or just after the engine is turned off since it will be hot.

* Failure to follow this precaution can cause burns.

■ Do not modify the machine.

Do not modify the machine.

* Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.

■ Inspection and maintenance

Be sure to perform checks and maintenance before and after operating the machine.

* Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.

■ **Performing the periodic checks and maintenance**
Perform the periodic checks and maintenance every year, and maintain each part. Be sure to change the power steering hose every two years and to check the electrical wires every year.

* Failure to follow this precaution can cause an accident or the machine to malfunction due to improper maintenance.

⚠ Caution

■ **Caution of reel mower**

- Do not insert hand, foot or other things to the rotating part, where dangerous, during operation or maintenance.
- Remove obstacles such as rocks before using machine, they cause the damage of reel cutter and bed knife, and fry apart to invite an accident. In case the obstacles get caught in the reel cutter, switch the engine off, and remove it after stopping the driving unit completely.
- Protective cover and belt cover prevent the risk of operator, when they damaged, replace them and settled in the proper position.

3. Inspection and maintenance before and after operating the machine

⚠ Danger

■ **Add oil and refuel when the engine is cold.**
Do not add oil or refuel when the engine is operating or if the engine is hot.

* Failure to follow this precaution can cause the fuel to ignite and cause a fire.

■ **Fire is strictly prohibited when refueling**
Do not smoke or use open flames when refueling.

* Failure to follow this precaution can cause the fuel to ignite and cause a fire.

■ **Take precaution with fuel leaks.**
Be sure to check the fuel pipe and see if it is damaged and fuel leaks.

* Failure to follow this precaution can cause fuel to ignite and cause a fire.

■ **Close the fuel cap and clean up any spilt fuel.**
After refueling, be sure to securely close the fuel cap and thoroughly clean up any spilt fuel.

* Failure to follow this precaution can cause a fire.

■ **Fire is strictly prohibited when checking the battery**
Fire is strictly prohibited when checking or charging the battery.

* Failure to follow this precaution can cause the battery to ignite and explode, which can cause burns.

■ **Do not let electrolyte get on your skin.**
Do not let electrolyte get on your skin or on your clothes. If it gets on your skin or clothes, immediately wash the affected area with water.

* Failure to follow this precaution can cause burns or damage to your clothes.

■ **Install and remove the battery by following the correct procedure.**
To install the battery, connect the positive (+) battery cable first. To remove the battery, disconnect the negative (-) battery cable first.

* Failure to follow this precaution can cause a short circuit, which can cause burns and a fire.

⚠ Warning

■ **Do not allow the electrolyte to go below the "LOWER" level mark.**
Check the electrolyte between the "UPPER" and "LOWER" level marks and that it is not below the "LOWER" level marks.

* This comment is just for the battery equipped originally. In case the replacement battery is maintenance-free, you do not need to check the level of electrolyte.

* Failure to follow this precaution can cause the pole connector in the container to be exposed from the electrolyte if it is below the "LOWER" level mark, which can cause sparks when starting the engine, and the gas in the container to ignite, causing an explosion.

■ **Take precaution with high-pressure oil.**
Always check if the hydraulic fittings and hoses are loose or damaged. When disconnecting the fittings and hoses, release the pressure in the hydraulic circuit.

* Failure to follow this precaution can cause the high-pressure oil to break through your skin and cause an injury.

⚠ Caution

■ **Be sure to check the electrical parts and wires.**
Check if the electrical wires are touching other parts, if the covering is damaged, or if the connector is loose every day before operating the machine.

* Failure to follow this precaution can cause a short cut and a fire.

■ **Do not fill the tires with air over the specified maximum air pressure.**
When filling the tires with air, do not fill the tires over the specified maximum air pressure.

* Failure to follow this precaution can cause the tires to explode and cause an injury.

■ **Take sufficient precaution with exhaust gas.**
Do not start the engine in an enclosed area. Start the engine outdoors with sufficient air circulation. If you have to start the engine indoors, make sure there is sufficient ventilation.

* Failure to follow this precaution can cause you to be poisoned by the exhaust gas, which can result in death.

■ **Be sure to check the parking brake lever.**
Check that the brake operation is not faulty and that the parking brake lever is not remarkably loose nor does it have remarkable play.

* Failure to follow this precaution can cause an accident.

■ **Remove debris from the muffler and engine.**
Check that there is no grass, debris, or fuel around the muffler and engine or on the brakes every day before operating the machine.

* Failure to follow this precaution can cause a fire.

■ **Turn the engine off while inspection and maintenance.**
Be sure to turn the engine off while inspection, servicing, repairing, or cleaning the machine.

* Failure to follow this precaution can cause you to be pinned under the machine or a personal injury.

■ **Let overheated parts sufficiently cool down before inspection and maintenance.**
Let the parts that overheat such as the muffler and engine to sufficiently cool down before inspection and maintenance.

* Failure to follow this precaution can cause burns.

■ **Perform inspect and maintenance on a flat and stable place.**
Perform inspect and maintenance on a flat and stable place with no traffic risk, using tire chocks, on which the machine will not overturn or move.

* Failure to follow this precaution can cause the machine to overturn and cause an unexpected accident.

■ **Be sure to install the covers.**
Be sure to install any covers that were removed while inspection and maintenance.

* Failure to follow this precaution can cause you to get caught up in the machine or a personal injury.

■ **Correctly use the proper tools for the job.**
Properly manage and correctly use the proper tools necessary for inspection and maintenance.

* Failure to follow this precaution can cause an accident due to improper maintenance.

4. When transporting the machine

⚠ Warning

■ **Do not operate quick start and stop on a running board.**
Take sufficient precaution when operating on slopes or running boards.

* Failure to follow this precaution can cause an accident such as fall or overturn.

■ **Use a running board with sufficient strength, length, and width.**
When loading or unloading the machine onto a truck, be sure to turn the engine of the truck off on a flat surface that is safe from traffic, set the parking brake to avoid moving, and chock the wheels. The running board should be non-skid and bear sufficient strength, length, and width.

* Failure to follow these precautions can cause an accident such as fall or overturn.

■ **When the machine is loading / unloading on the truck.**
When the machine is loading onto a truck, it move forward, when the machine is unloading, it move backward.

* Failure to follow this precaution can cause you to loose your balance and cause an accident such as causing the machine to fall or overturn.

■ **Securely fasten the machine to the truck with a rope.**
When loading the machine onto a truck and moving it, set the parking brake and fasten the machine to the truck with a rope that has sufficient strength.

* Failure to follow this precaution can cause the machine to fall from the deck of the truck and cause an accident.

5. When moving and taking the machine on or off a field

⚠ Warning

■ **Do not operate the machine on public roads.**
This machine is not authorized as a special motorized vehicle. Do not operate it on public roads.

* Failure to follow this precaution is subject to punishment for violating the traffic laws.

■ **Check your surroundings for safety and slowly accelerate.**
Start the engine after checking your surroundings for safety. Accelerate slowly, do not start quickly.

* Failure to follow this precaution can cause a personal injury.

■ **Take precaution with the shoulder of the road when moving.**
On roads with ditches or on roads where both sides are inclined, take sufficient precaution with the shoulder of the road.

* Failure to follow the precaution can cause the machine to fall.

■ **Do not start, stop, or turn suddenly, or operate at excessive speeds.**
Start and stop slowly. When turning, sufficiently reduce your speed. Also, sufficiently reduce your speed when operating on slopes, bumpy roads, or curves.

* Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ **Use a running board to cross ditches.**
When entering a field, crossing ditches, or traveling over a soft area, be sure to use a running board. Use non-skid running board bearing sufficient strength, length, and width.

* Failure to follow this precaution can cause the machine to have an accident by slipping or overturning.

⚠ Caution

■ **Set the parking brake while warming the engine up.**

* Failure to follow this precaution can cause the machine to move spontaneously and cause an accident.

■ **When operating at high speeds do not operate the brake pedal suddenly.**

* Failure to follow this precaution can cause the machine to overturn or fall.

6. When operating the machine

⚠ Warning

■ **Do not substitute weight for people or cargo.**
Do not load people or cargo as a substitute for weight.

* Failure to follow this precaution can cause an injury.

■ **Wear protective gear.**
Be sure to wear safety glasses, a helmet, and slip resistant shoes.

* Failure to follow this precaution can cause an injury.

■ **Do not go or place your feet under the operating machine.**
Do not go or place your feet under the operating machine.

* Failure to follow this precaution can cause a personal injury when the operating machine is lowered.

■ **Before operating, remove obstacles in the field such as rocks, etc.**

* Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.

■ **Do not start, stop, or turn suddenly, or operate at excessive speeds.**
Start and stop slowly. When turning, sufficiently reduce your speed.

* Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ **Operate or work on a slope with extreme care.**
The balance of the machine worsens on slopes and bumps. Be sure to decrease your speed sufficiently and operate and work slowly.

* Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ **Be sure to turn the engine off when inspecting the mower.**
When a malfunction of the reel cutter occurs such as jamming the grass or rocks, be sure to turn the engine off to inspect and make adjustments.

* Failure to follow this precaution can cause you to get caught up in the machine.

■ **Keep away from children.**
Keep away from children and do not operate the machine near them.

* Failure to follow this precaution can cause a personal injury.

■ **Inspect and perform maintenance immediately if unusual vibration occurs.**
If unusual vibration occurs, stop the engine immediately, then inspect the cause and repair it if necessary.

* Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.

■ **Keep bystanders away from grass discharge area.**
Grass, dust, sand and rocks will fly out. In addition, be sure to install the reel cover.

* Failure to follow this precaution can cause a personal injury.

■ **Do not look aside. Do not operate or travel with no hands.**

* Failure to follow this precaution can cause a personal injury or material damage.

■ **When leave from the machine, stay machine at level place and stop engine.**
Stay the machine at flat and stable place, then turn the engine off, set the parking brake, chock the wheel, lower the mower unit, and remove key from ignition switch.

* Failure to follow this precaution can cause the machine to move spontaneously and cause an accident.

■ **Do not carry passengers.**
The riding capacity of this machine is one person. Do not carry passengers.

* Failure to follow this precaution can cause an unexpected accident.

■ **Precautions for operating on slopes**
When operating on a slope, the ground will not be even and there may be bumps and rocks, which can cause the machine to incline suddenly.

Therefore, never operate the machine on a slope of 15 degrees or more, or in areas in which there is danger of it overturning or slipping.

* Remove holes, rocks, or tree roots (and other illegally thrown objects) and check that these items do not exist before operating the machine on a slope.

* When operating the machine on a slope, work along the contour line and make turns where the grade of the slope is low.

■ **Remove the battery and pull out the key when long trem storage**
Remove the battery and pull out the key when not using the machine and keep in storage for a long time.

* Failure to follow this precaution can cause fatal accident.

7. After operating the machine and storage

⚠ Danger

■ **Add oil and refuel when the engine is cold.**
Do not add oil or refuel when the engine is operating or if the engine is hot.

* Failure to follow this precaution can cause the fuel to ignite and cause a fire.

■ **Do not open the radiator cap when the radiator is hot.**
When the radiator has overheated, do not open the radiator cap.

* Failure to follow this precaution can cause scalding water to shoot out and cause burns.

■ **Cover the machine with a sheet after it has sufficiently cooled down.**
If covering the machine with a sheet, cover it after the muffler and engine have sufficiently cooled down.

* Failure to follow this precaution can cause a fire.

■ **Install and remove the battery by following the correct procedure.**
To install the battery, connect the positive (+) battery cable first. To remove the battery, disconnect the negative (-) battery cable first.

* Failure to follow this precaution can cause a short circuit, which can cause burns and a fire.

⚠ Warning

■ **Perform inspection and maintenance on a flat and stable place.**
Set lower the mower unit and perform inspection and maintenance on a flat and stable place on which the machine will not overturn or move.

* Failure to follow this precaution can cause the machine to overturn and cause an unexpected accident.

■ **Remove debris from the muffler and engine.**
Check that there is no grass, debris, or fuel around the muffler and engine and on the brakes every day before operating the machine.

* Failure to follow this precaution can cause the fuel to ignite and cause a fire.

■ **Be sure to inspect the electrical components and wires.**
Inspect if the electrical cables are touching other parts, if the cover is disconnected, or if the connector is loose every day before operating the machine.

* Failure to follow this precaution can cause a fire.

■ Take precaution with high pressure hydraulic oil.

Always check if the fittings and hoses are loose or damaged. When disconnecting the joints and hoses, release the pressure in the hydraulic circuit.

* Failure to follow this precaution can cause the high-pressure hydraulic oil to break through your skin and cause an injury.

■ Turn the engine off while inspecting and maintenance.

Be sure to turn the engine off while checking, servicing, repairing, or cleaning the machine.

* Failure to follow this precaution can cause you to be pinned under the machine or a personal injury.

■ Be sure to install the covers.

Be sure to install any covers that were removed during inspection and maintenance.

* Failure to follow this precaution can cause you to get caught up in the machine or a personal injury.

■ Let overheated parts sufficiently cool down before inspection and maintenance.

Let the parts that overheat such as the muffler and engine to sufficiently cool down before checking or performing maintenance.

* Failure to follow this precaution can cause burns.

- Inspect the rotation speed of engine at the dealer of Baroness to make sure the safety and accuracy of engine.
- Please consult with the dealer of Baroness, when the large scale repair or maintenance get necessary.
- Be sure to use the genuine parts and accessory, in order to use the machine in safe and with best performance. Pay attention that it is possible not to warrant the products when using part and accessory of third party.
- Don't use the machine, when modify it without previous notice to Baroness.

■ Sound Pressure Level

This machine was confirmed to have a continuous weightened sound pressure level of 84 dB (A), at a position of operators as the result of measuring identical machines based on the procedure specified in directive EC standard 2006/42/EC and its amendments.

■ Sound Power Level

This machine was confirmed to have a sound power level of 98 dBA/lpw as the result of measuring identical machines based on the procedure specified in directive EC standard 2000/14/EC.

■ Vibration Level

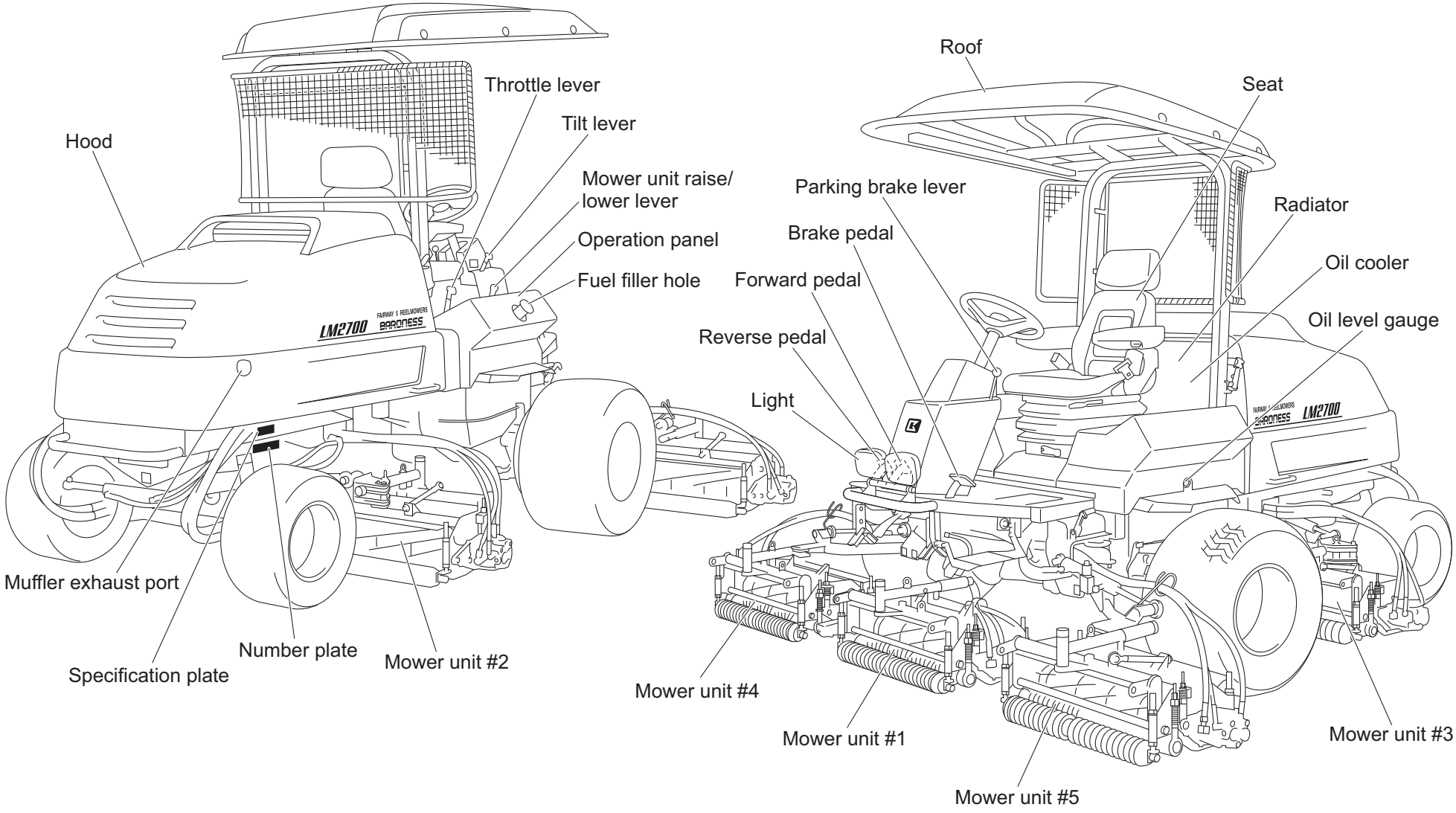
Hand-arm vibration

This machine was confirmed to have a maximum vibration level on hands and arms of $3.81 m/s^2$ as the result of measuring identical machines based on the procedure specified in ISO5349.

Whole Body

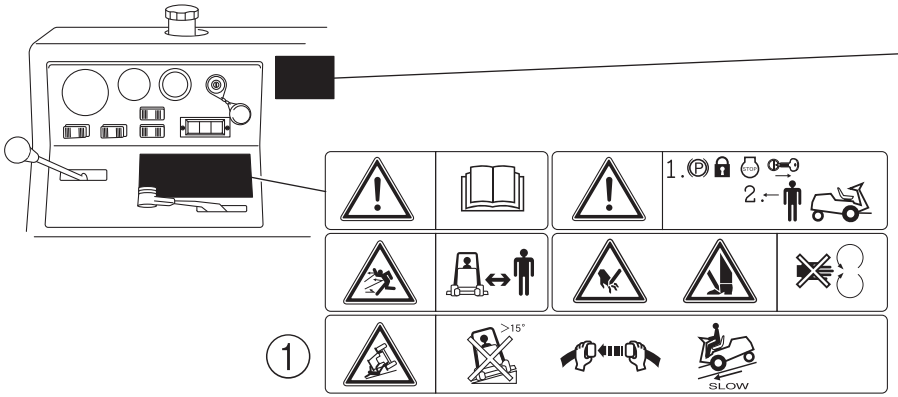
This machine was confirmed to have a maximum vibration level on whole body of $0.99 m/s^2$ as the result of measuring identical machines based on the procedure specified in ISO2631.

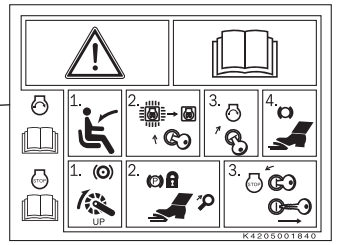
Names of various sections



Warning label and operation label attachment locations

<Operation panel>





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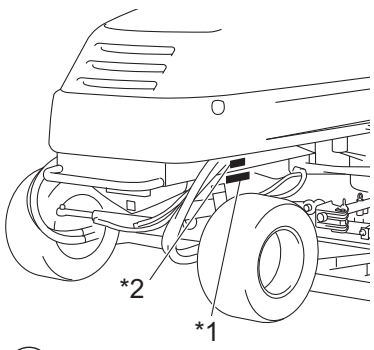
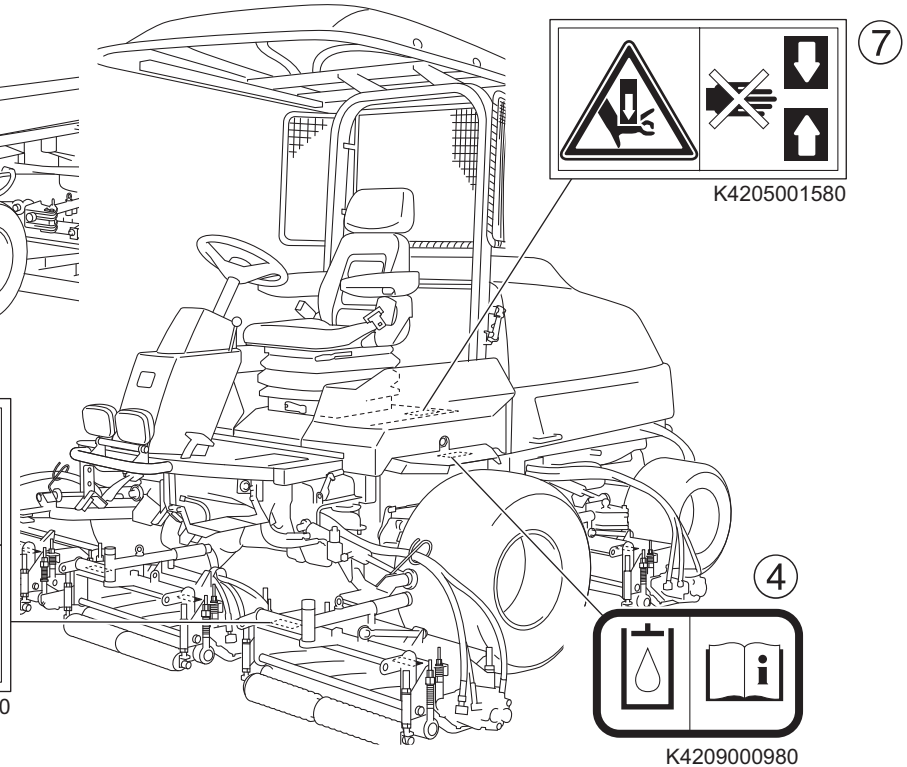
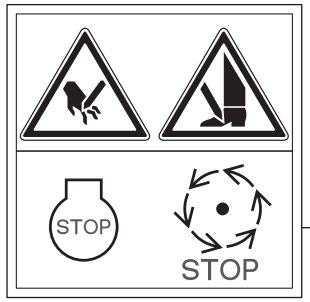




K4205001580

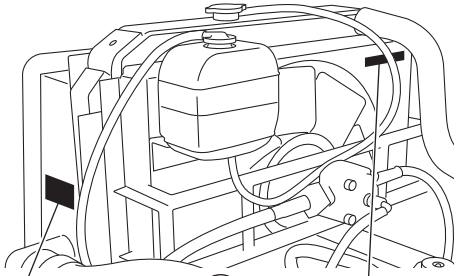
K4209000980



K4205001600

* Attach two labels to each mower.

<Inside the hood on the left side that can be seen from the rear>



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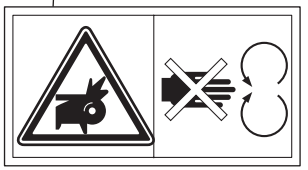
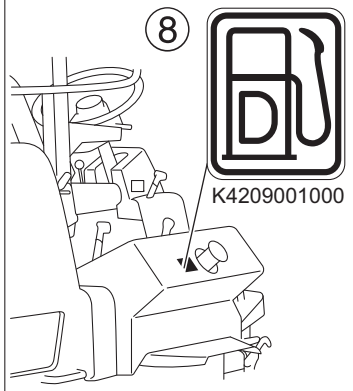


K4205001530

* Attach on the left and right.

<Front right of the frame>



K4209001000

* Low sulfur or ultra low sulfur diesel fuel only.

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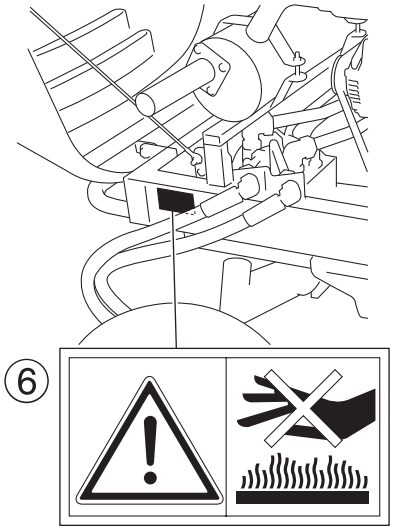
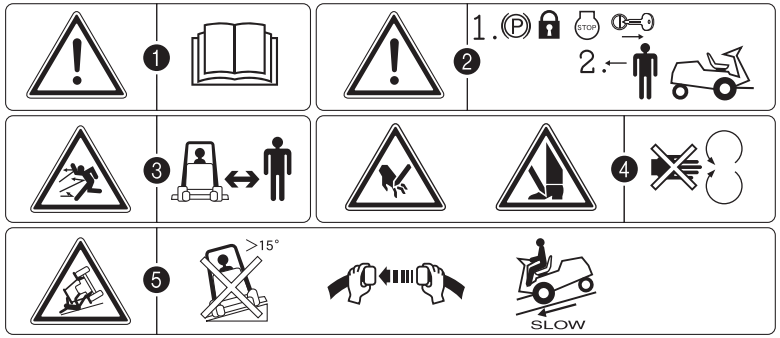


K4205001540

Warning label and operation label description

Attach the warning labels and operation labels in the locations that are close to dangerous parts and in which the labels can be easily seen.
If a label is damaged or peels off, attach a new label to the machine.

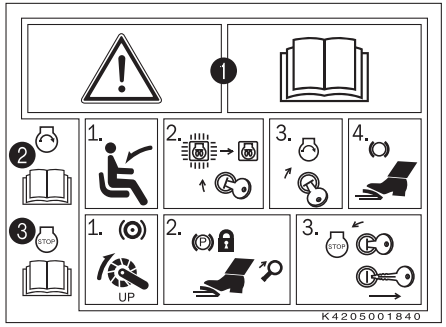
①



LM2700-0959Z0

❶ Warning : Read the Operator's manual.
❷ Warning : Leave the machine after setting the parking brake, turning the engine off, and removing the engine key.
❸ Danger : Flying objects - Excluding the operator, keep a safe distance away from the machine.
❹ Danger : Cutting hands or feet - Do not put near moving parts.
❺ Danger : Overturning - Do not operate the machine on a slop of 15 degrees or more due to danger of overturning.
When going down a slope, fasten the seat belt and operate the machine at slow speeds.

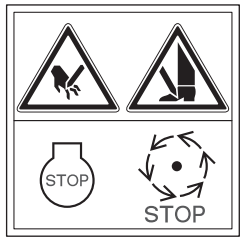
②



K4205001840

❶ Warning : Read the Operator's manual
❷ Engine starting-up procedure
(please read the Operator's manual.)
① Take a seat.
② Turn the key to the "Glow" position, and wait until the "thermostat" lamp goes out.
③ Turn to the "START" position.
④ Step on the brake pedal and release the parking braking.
❸ : Engine stop procedure
① Turn off the knife rotation switch and raise the mower.
② Apply parking brake system.
③ Turn the key to the "STOP" position and remove it.

③

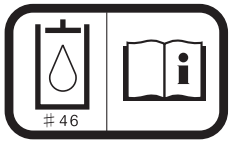


K4205001600

Danger : Cutting hands or feet

If you do not stop rotating the mower and the engine is not turned off, there is a risk that you may get injured.

④



K4209000980

High-pressure oil symbol

Read the Operator's manual.

⑤

K4205001530

Danger : Cutting of Hand

Placing your hand near the fan and the belt while the engine is running could result in injury.

⑥

K4205001540

Caution : Hot surface

Do not touch. It can cause burns.

⑦

K4205001580

Caution : Pinch

You can get pinched.

⑧

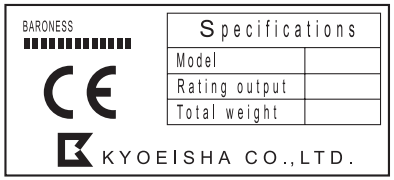
K4209001000

Fuel filler port

(No.2 diesel fuel only)
Low sulfur or ultra low sulfur diesel fuel only

*1 Number Plate

*2 Specification Plate



Features of LM2700

- Compared with the conventional machine, the work at a quick speed can also be cut finely.
  Moreover, since the travelling speed is also quick and the turning radius is small, efficient work can be performed.
- Comfortable work can be performed by the introduction of the large displacement engine.
- The introduction of the new oil-hydraulics travelling system and the large-sized disc brake etc. is raising the safety.
- The optimal sheet position is obtained according to the driver's body.
- The maintenance of the bottom mower can be performed easily.

Specifications

Model		LM2700	
Mower unit type		26in.	22in.
Drive system		Four-wheel drive	
Dimensions	Total Length	300cm	
	Total width	320cm (228cm when travelling)	297cm (228cm when travelling)
	Total height	220cm (Roof), 204cm (Roof bar), 150cm (Steering wheel)	
	Wheelbase	155cm	
Total weight		1,750kg	1,730kg
Speed	Two-wheel drive	0~22km/h	
	Four-wheel drive	0~14km/h	
Wheels	Front wheel	26.5 x 14.00-12	
	Rear wheel	20 x 12.00-10	
Engine	Model	KubotaV2203-M Vertical type water-cooled four-cycle diesel	
	Number of cylinders	4	
	Displacement	2.197L (2,197cm^3)	
	Rating output	33.5kW (45.3PS)/2,600rpm	
	Rotation Speed	975~2,800rpm (without load) (*1)	
	Fuel consumption (at 2,500 rpm)	250g/kW • h (185g/PS • h)	
Battery		105D31R (recommended: EXIDE 27-60)	
Mowing height		8~45mm (*2)	
Mowing width		277cm	254cm
Reel cylinder		9 blade 66cm x 5 (reel diameter 16.3cm)	9 blade 56cm x 5 (reel diameter 16.3cm)

(*1) Maximum engine rpm is set up 2,600 rpm before shipment.

(*2) For 10 mm or less mowing height, the optional bed knife is required.

Handling instructions

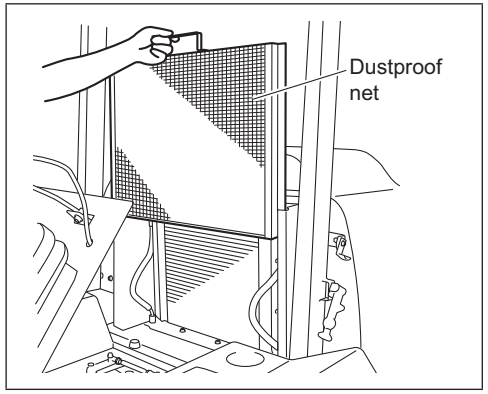
1. Inspection before use

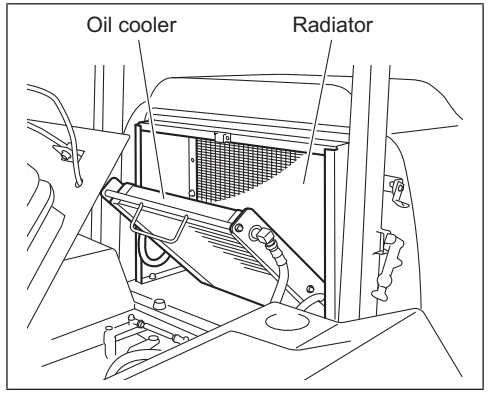
⚠ Caution

- Please be sure to check the following matter before putting the engine into operation.

1-1 Cleaning of the radiator and oil cooler

Be sure to clean when the dust has adhered to the radiator, oil cooler, and dustproof net. When you operate it in the dusty place, please try to clean a little early.





⚠ Caution

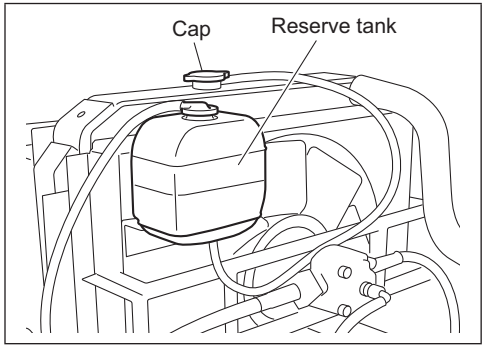
- If it does not clean, it will become overheating of the engine and the cause of the seizure.
  Moreover, it also becomes cause of the damage of the hydraulic equipment.

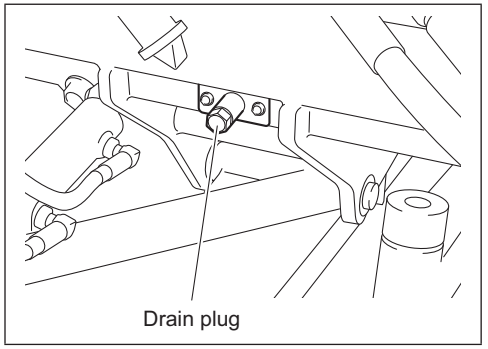
1-2 Inspection of the radiator and coolant level

⚠ Caution

- Perform the inspection when the engine is cold. The radiator cap is the pressure type. If the radiator cap is removed when the engine is high temperature, the steam blows off and it may cause burns. After the water temperature and the pressure falls, apply a thick cloth etc. to the cap. Then turn to the left gradually, and loosen and remove.

- Check that the coolant level of the reserve tank is between "FULL" and "LOW".
- When the coolant is below the line of "LOW", add the coolant from the cap part of the reserve tank to the line of "FULL". When there is no coolant in the reserve tank, supply it also from the cap part of the radiator to the top.
- Do not open the radiator cap in normal inspection.
- When the coolant level decreases, supply clean water only.
- Please drain the cooling water before winter or mix the long life coolant.
- Perform the drainage by the drain plug in the left side of the machine.





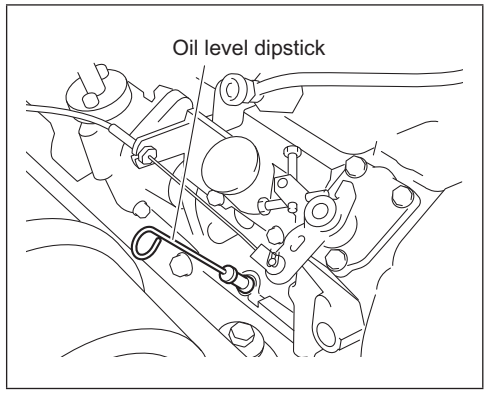
Standard long life coolant (LLC) consistency and the freezing point

Freezing point	LLC consistency (volume %)
Up to -10 °C	20%
Up to -15 °C	30%
Up to -20 °C	35%
Up to -25 °C	40%

* The radiator coolant capacity of this machine is about 12L. (including the reserve tank)

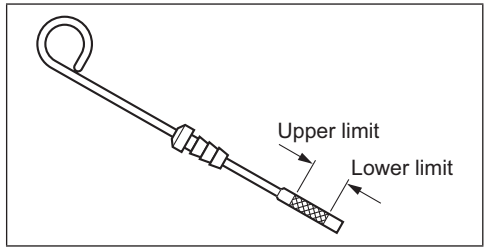
1-3 Inspection and refilling of engine oil

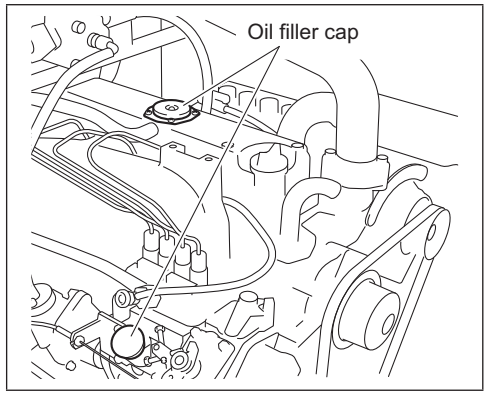
Put the engine on the level surface, and check the level of the oil by the dipstick. It will be the proper quantity, if the oil level is between the upper and lower limit when the dipstick is fully inserted. If the oil level is low, add the engine oil, and if the oil is dirty, exchange the oil. Perform the oil level inspection when the engine is suspended and after 10 to 20 minutes or more past. Please keep in mind that it becomes engine failure and cause of accident if the engine oil added too much.



Perform refilling of the engine oil from the oil filler. It takes some time for the added engine oil to fall in oil pan. Inspect the oil level again in 10 to 20 minutes after adding the engine oil.

* Never mix different kind of engine oil.
* Use the engine oil higher than the API service classification CD class, and SAE viscosity suited to the application environment (temperature).
* The engine oil capacity is approximately 9.7L

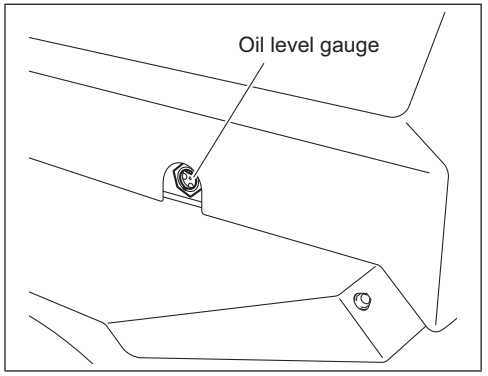




1-4 Inspection of the hydraulic oil

Level the engine and always check whether the hydraulic oil is contained to the center of the oil level gauge. When refilling the hydraulic oil, use the Shell Tellus 46 or equivalent type.

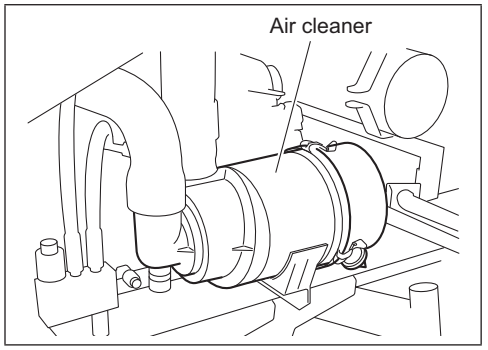
* Never mix different kind of the hydraulic oil.
* The tank capacity is approximately 44L.



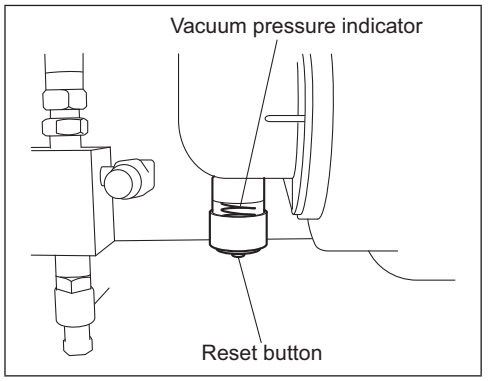
1-5 Cleaning of the air cleaner

Perform the inspection with the vacuum pressure indicator. If the element of the air cleaner becomes dirty, the red ring is visible in the vacuum pressure indicator.

Remove and clean the air cleaner.



If the element of the air cleaner is dirty, it will become the cause of the engine malfunction. When it's dirty, clean it by carefully tapping the element or blowing air from inside so that the element may not be damaged. Attach the element after clean up and push the reset button. Exchange the element of the air cleaner every 200 hours.



1-6 Inspection of the engine and its surroundings

Please refer to "Operating and instruction manual" for engine for handling of the engine.

1) The parts of the fuel system should check whether there is neither the crack nor the leak, and replace it with new one if necessary.
2) When the grass, the leaf, etc. have jammed to the inside of the muffler, and exhaust pipe or the surroundings, blow out by air.

1-7 Inspection of the tires

Inspect the tire pressure, crack, damage, and unusual wear.

Tire pressure	
Front wheel	150kPa (1.5kgf/cm^2)
Rear wheel	140kPa (1.4kgf/cm^2)

1-8 Supply of Fuel

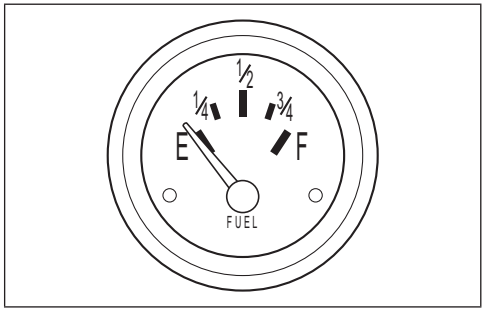
Stay the machine on the level.

Fuel guage approaches E (Empty), supply fuel (diesel) immediately.

Over-supply of the fuel is possible to cause the overflow of fuel from the fuel cap, when operating the machine on the slope.

* Use the low sulfur or ultra low sulfur diesel fuel (JIS No.2 diesel)

* Capacity of Fuel tank is about 51ℓ.



⚠ Warning

- Be sure to keep the following precaution, because the fuel is highly flammable.
- (Put any naked flame and cigarette off.) Keep fire away when suppling the fuel.
- Before suppling the fuel, stop the engine and cool it down enough.
- To prevent a fire, keep the machine clean and free of dust, grease and oil.
- Clean up any spilled fuel.
- Don't oversupply the fuel. It may cause the fire, if the fuel overflow from the fuel tank. Use diesel oil only. Be sure not to use gasoline.
- Don't supply gasoline.

2. Fastening of each portion

Many parts are fastening by bolts. Bolts and nuts may be loosened some time after initial operation. Be sure to tighten them by the specified torque.

Appropriate tightening torque (kgf·cm)

Nominal diameter	Normal bolt Hardness classification 4.8	Heat-treated bolt Hardness classification 10.9
M6	7~9 (71.38~91.77)	14~18 (142.76~183.55)
M8	14~19 (142.76~193.74)	28~38 (285.52~387.49)
M10	29~38 (295.71~387.49)	58~76 (591.43~774.97)
M12	52~67 (530.24~683.20)	104~134 (1,060.49~1,366.40)
M14	70~94 (713.79~958.52)	140~188 (1,427.58~1,917.04)
M16	88~112 (897.34~1,142.06)	210~260 (2,141.37~2,651.22)
M18	116~144 (1,182.85~1,468.37)	280~340 (2,855.16~3,466.98)
M20	147~183 (1,498.96~1,866.05)	370~450 (3,772.89~4,588.65)

3. Operation method of each part

⚠ Caution 3-1 About the mechanical operation

Check whether the operation state of each part is good, and the brake disc, tires, steering, and mower do not have abnormalities in particular before operating the engine. In any cases, operate the engine by the speed that can carry out the urgency stop. Locate and remove all debris, in the operating area before using equipment.

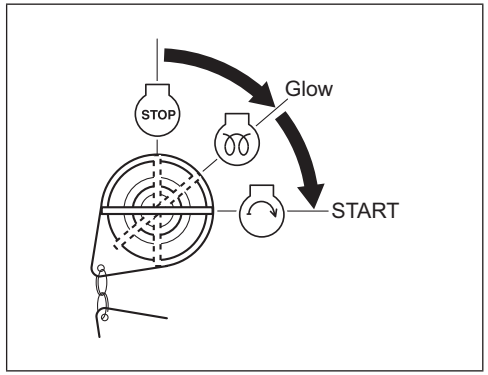
⚠ Warning 3-2 Before starting engine

- Inspect the area where the equipment will be used.
- Inspect whether there are no damages and the cover/guard are securely fastened in place.
- Never operate the engine without proper ventilation.

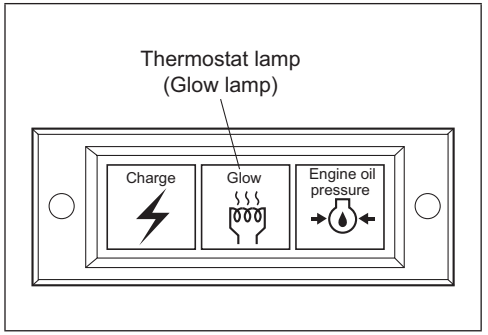
3-3 Starting and stopping the engine

● Starting procedure

1) Sit on the seat, and adjust seat arrangement for safety.
2) Hold brake pedal down, pull parking brake lever up until it engages.
3) Make the reel rotary switch into the "OFF" position.
4) Pull the throttle lever a little to the upward.
5) When the ignition key is turned to the "GLOW" position, the thermostat lamp (glow lamp) will turn on.



6) Fully turn the ignition key to rightward promptly when the thermostat lamp (glow lamp) turns off, the starter will operate and the engine will start. Release it as soon as engine starts.
7) Ensure that the charge lamp and the engine oil pressure lamp turns off.
   When they do not turn off, stop the engine and perform the inspection and repair.



⚠ Caution

- Do not step on the shift pedal. Safety device prevents the engine from starting.
- Do not touch the V-Belt, the Pulley, etc. during the engine rotation.
- Operation of the starter is a maximum of 15 seconds. When the engine still does not start, to prevent battery wastage restart should be made 30 to 60 seconds after.

● Stopping procedure

1) Hold the brake pedal down, pull the parking brake lever up until it engages.
2) Make the reel rotary switch into the "OFF" position.
3) Return the throttle lever to the "LOW" position.
4) The engine will stop, when the ignition key turns to "STOP" position.

3-4 About the safety device

This machine is equipped with the Safety device to starting/stopping of the engine as interlock system.

- Safety device on this machine prevents the engine from starting unless;
  a. Sit on the seat.
  b. Parking brake is engaged.
  c. The reel rotation switch is "STOP" position.
  d. The shift pedal is in Neutral position. (Do not step on the shift pedal.)
- The interlock system will stop the engine if the operator leaves the seat without engaging the parking brake.

⚠ Danger **3-5 Cautions on fuel handling**

- It is highly flammable. Do not smoke when handling fuel.
- Never fill the fuel tank indoors, and while engine is running or the engine is hot.
- In order to prevent the fire, always keep the engine clean and be sure to remove deposition of grass, grease, and oil.
- Clean spilled fuel immediately.

⚠ Caution **3-6 Cautions when leaving the machine**

1) Stop the machine in level place and engage the parking brake.
2) Make the reel rotary switch into the "STOP" position, and lower the mower unit to the ground.
3) Stop the engine.
4) Remove the ignition key.
5) When effectiveness of the brake is not good, park the machine using wheel stoppers.

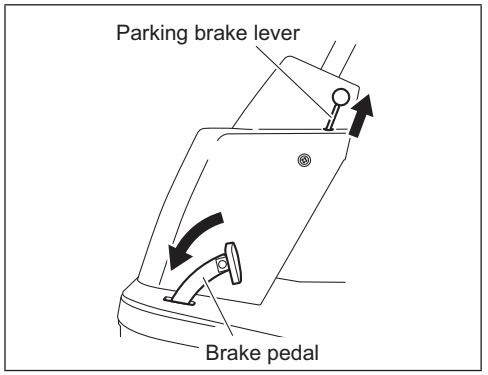
⚠ Caution

- Do not park on the slopes.

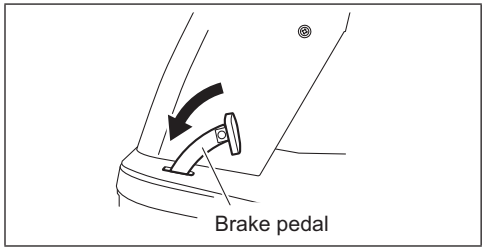
3-7 Parking brake

The parking brake is on the center housing left side.

Hold the brake pedal down and pull the parking brake lever up for engaging the parking brake.



Press the brake pedal down again for releasing the parking brake.

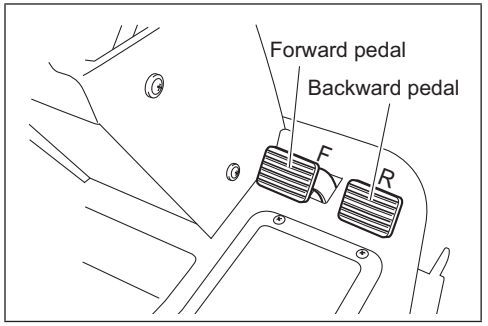


⚠ Caution

- Be sure to run after releasing the parking brake. Otherwise, the brake disc and the hydraulic equipment are damaged.

3-8 Forward/Backward pedal

Two pedals system is adopted. To move forward, press the inside pedal down. To move backward, press the outside pedal down. If the pedal is returned, the machine will stop automatically.

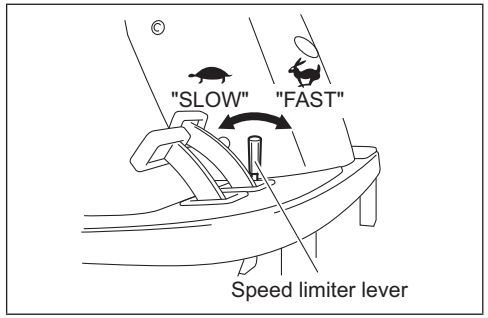


⚠ Warning

- The travelling in the public road is not permitted by law.

3-9 Speed limiter lever

It is a shift lever, which restricts the forward pedal step in amount. The step in amount decreases if it turns to the "SLOW" side.

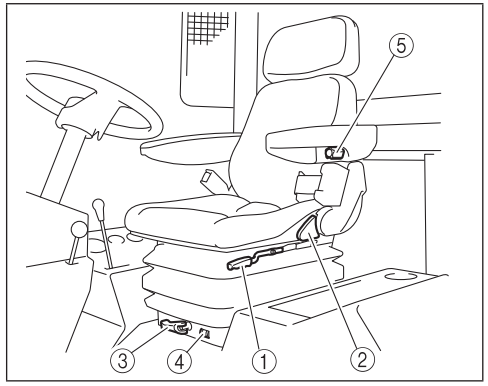


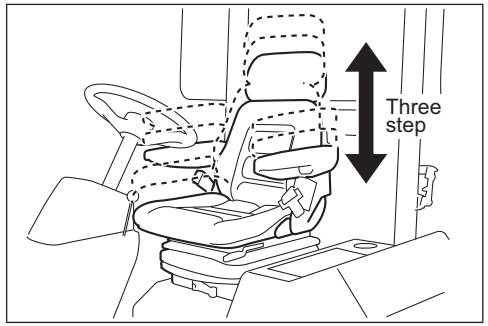
⚠ Caution

- Be sure to make set to "SLOW" position when travelling by two-wheel-drive. If make set to "FAST" position, it becomes too fast when the pedal is fully pressed in.

3-10 Adjustment of seat

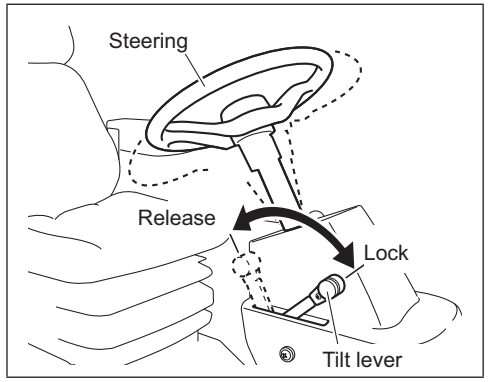
- The seat can be adjusted forward and backward by the seat lever (1).
- Angle adjustment of the reclining backrest can be performed by the lever (2).
- Hardness of the seat suspension can be adjusted by turning the handle (3) Check and adjust with the scale 4. (50~130kgf)
- Angle setting of the armrest can be performed by turning the knob (5).
- The height of the seat can adjust to the three steps by lifting the whole seat.





3-11 Tilt steering

Pull lever up to release steering column. Tilt column up or down to position desired. Push lever back to lock steering column in place.

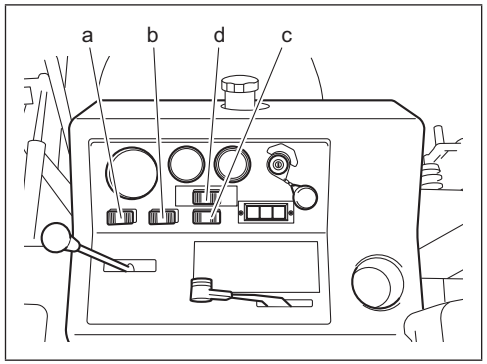


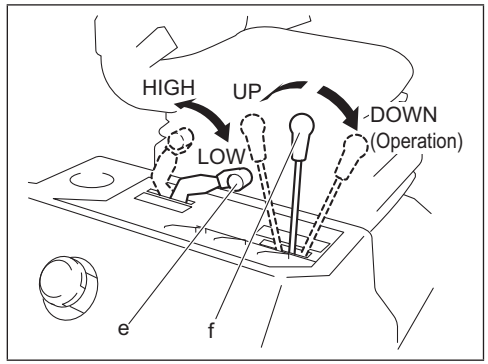
⚠ Caution

- Never adjust steering while machine is moving.
- To prevent serious accidents, ensure tilt steering lever is fastened during operation.

3-12 Switches, levers on the operation panel

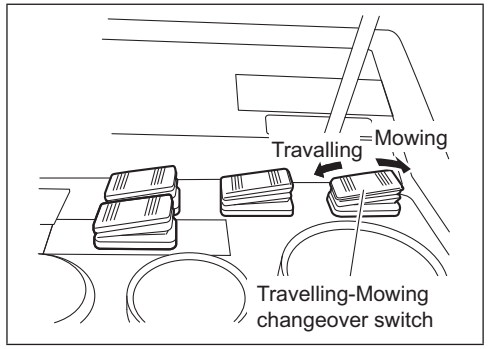
a. Travelling-Mowing changeover switch
b. 2WD - 4WD changeover switch
c. Reel rotary switch
d. Reel forward-reverse rotation switch
e. Throttle lever
f. Mower unit raise/lower lever



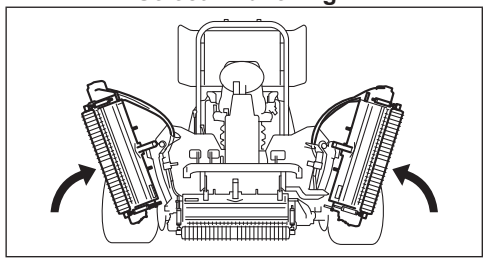


3-13 Travelling-Mowing changeover switch

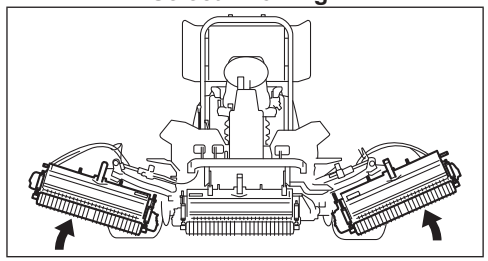
When it is set to UP, the position of mower unit #4 & #5 can be changed. Press switch to the "Travelling" position, #4 & #5 mower units raise to top. Press switch to the "Operating" position, #4 & #5 mower units raise up to middle.



Select "Travelling"

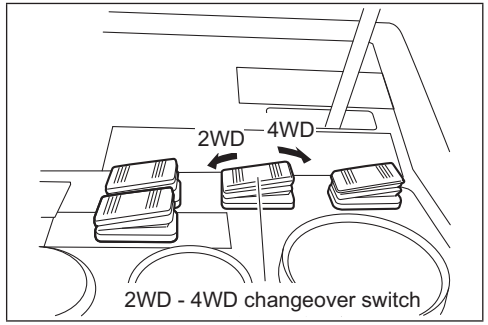


Select "Mowing"



3-14 2WD - 4WD changeover switch

It is the switch that chooses two-wheeldrive (front wheel) travelling or four-wheel drive travelling. If it moves to the "2WD" position it will become the two-wheeldrive, and if it moves to the "4WD" position, it will become the four-wheel drive.



⚠ Caution

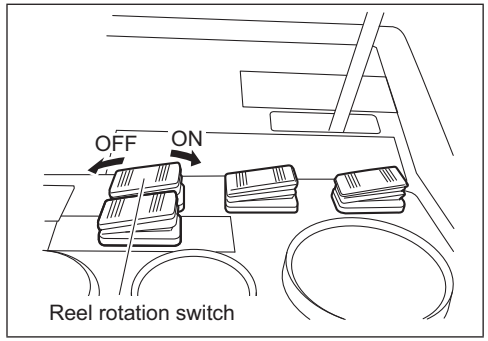
- When you move under the operation and by the sloping ground, be sure to choose the four-wheel drive.
- Operate the machine in consideration of the state of the roads and the ground, such as the slant and the undulation.
- To prevent the damage of hydraulic equipments, be sure to stop the machine and flip a switch.

3-15 Reel rotation switch (Mowing)

It is swing type switch with "ON" and "OFF" for the reel rotation.

To mow, press switch to "ON" position, and switch to "OFF" position to disable mowers.

* When operator leaves the seat, engine will stop.



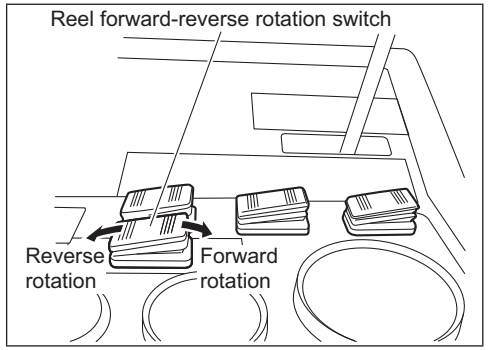
⚠ Caution

- When the mower unit is in the UP position, the reels do not rotate.
- Inspect the area where the machine will be used.

3-16 Reel reverse rotation switch

It is swing type switch that exchange the rotation direction of the reel. To rotate the reels inverse (backlapping), press the switch to the "on" position.

* Engine does not stop, even though the operator leaves the seat.

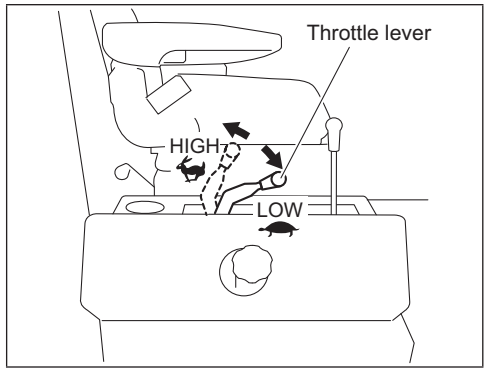


⚠ Caution

- When not operating the reel rotation switch, the reels do not rotate.
- Never switch on and off while the reel rotating, otherwise hydraulic equipment may be damaged.

3-17 Throttle lever

If the throttle lever is pulling up to the top (HIGH), the engine speed becomes high, and if the throttle lever is lowering to the bottom (LOW), the engine speed becomes low.

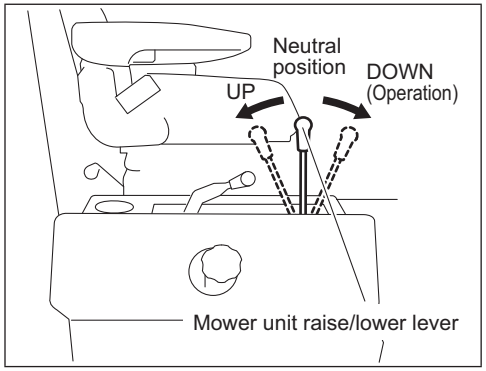


3-18 Mower unit raise/lower lever

It is the shifter lever that raises or lowers the mower unit.

If the shifter lever is moved to the "UP" position, the mower unit will go up, and if it is moved to the "DOWN" position, the mower unit will descend.

At the time of the mowing, move the shift lever to the "DOWN" position. If it is shifted to the neutral position, the cylinder is fixed and it cannot respond to the undulation.



⚠ Caution

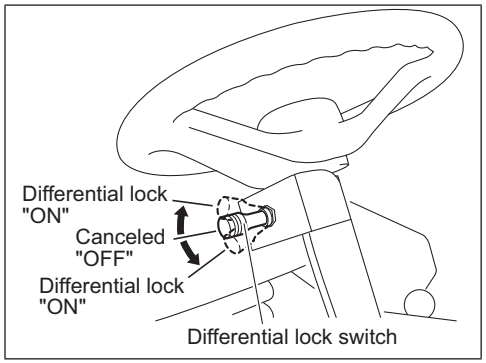
- Inspect the area where the machine will be used.

3-19 Differential lock switch

It is located in the right side on the steering column.

It is the switch that operates the differential lock of the both front wheels.

If the switch is moved to the upper or lower position, the front wheel will be in the differential lock state. If the switch is released, the switch will return to the neutral position and the differential lock will be canceled.



⚠ Caution

- Never perform the differential lock operation when it's not required. There is a possibility that the hydraulic equipment may be damaged.

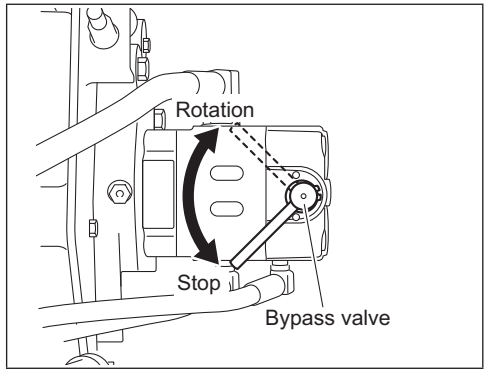
3-20 Bypass valve

It is located on the hydraulic motor of each mower unit.

The hydraulic motor will become free if the shift lever is shifted to the stop position.

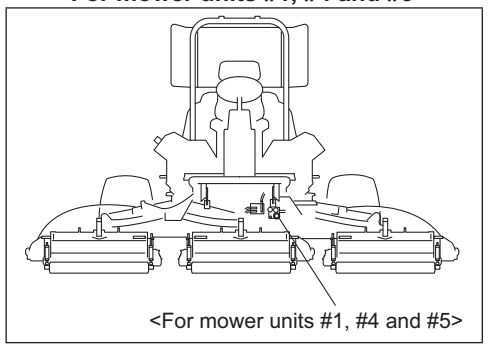
Rotate position: ( ).

Stop position: ( ).

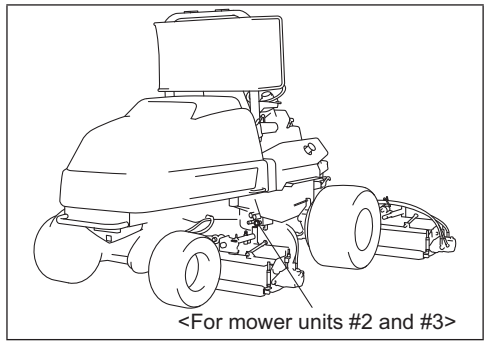


3-21 Reel rotation adjusting valve

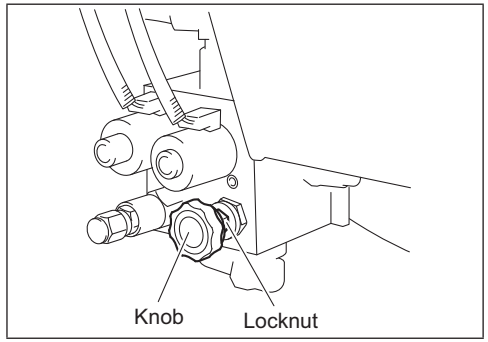
<For mower units #1, #4 and #5>



<For mower units #2 and #3>

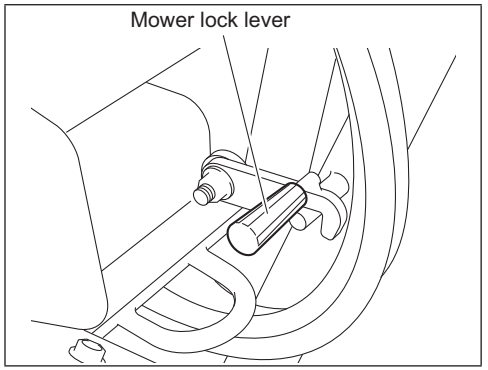


It is the valve that adjusts the rotation speed of the reel cutter. Loosen the locknut and turn in the knob, the rotation speed will become slow.



3-22 Mower lock lever (latch)

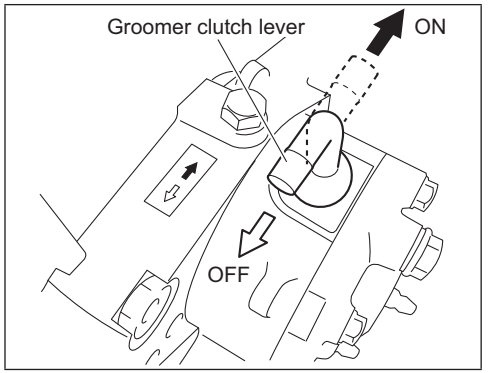
Hang the mower lock lever, when you transfer the machine or store the machine with the mower unit #4 and #5 are raised.



3-23 Groomer clutch lever (option)

It is the operating lever that makes the groomer "ON" or "OFF".

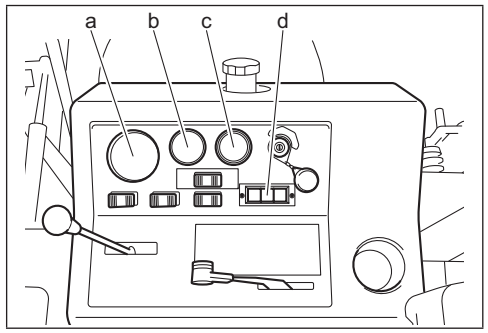
When you do not operate the groomer, be sure to shift it to "OFF" position.



4. Measuring instrument

4-1 Instruments of operation panel

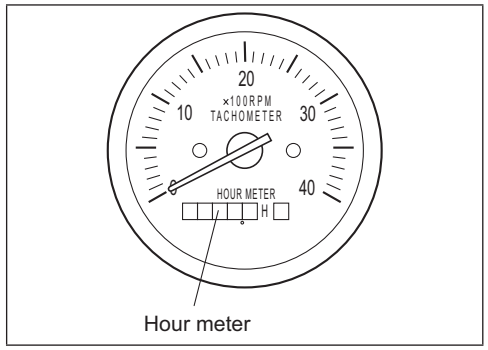
a. Tachometer & hour meter
b. Water temperature gauge
c. Fuel level gauge
d. Pilot lamp
- Charge lamp
- Glow lamp
- Oil pressure lamp
  (Engine oil pressure lamp)



4-2 Tachometer & hour meter

Indicate the engine speed and total operating hour.

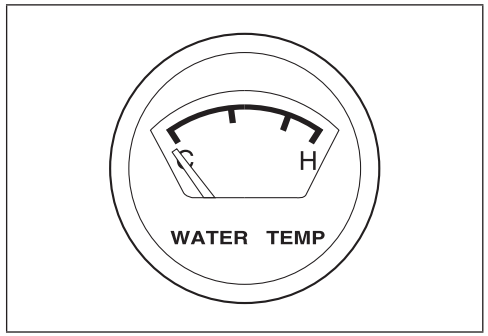
Carry out the periodic inspection and maintenance, and repair based on the operating hour.



4-3 Water temperature gauge

When the water temperature gauge rises to near "H" during the operation, it is in the overheating state. Stop the engine and carry out the maintenance and repair, after making the engine no-load and operating for 5 minutes in idling.

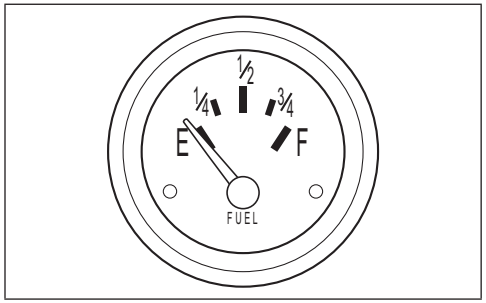
- If the water temperature raise above 115°C, the warning alarm (discontinuous sounds) will sound.



4-4 Fuel gauge

It indicates current fuel level. If the fuel gauge approaches E(Empty), supply fuel (diesel) immediately.

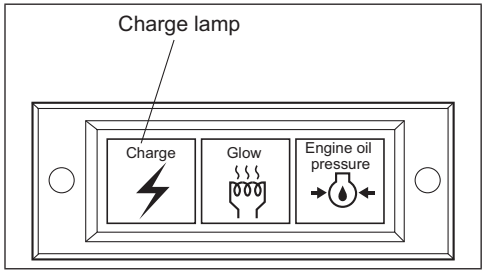
* The capacity of the fuel tank is approximately 51 Liters.



⚠ Danger Don't oversupply the fuel. It may cause the fire, if the fuel overflow from the fuel tank. Use diesel oil only. Be sure not to use gasoline.

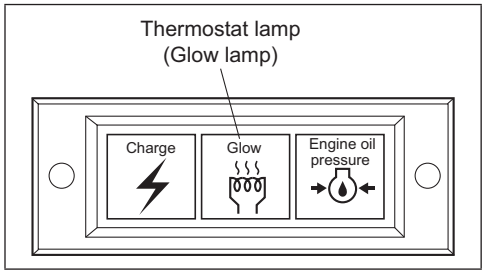
4-5 Charge lamp

The lamp turns on when the ignition switch is in the "ON" position. After the engine starts, and the light will turn off if it charges normal. When the lamp is turned on during operation, stop the engine immediately and inspect, do maintenance and repair.



4-6 Thermostat lamp (Glow lamp)

Refer to 3-3 "Starting and stopping the engine".

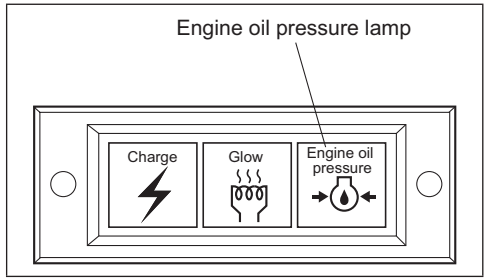


4-7 Oil pressure lamp (Engine oil pressure lamp)

The lamp turns on when the ignition switch is in the "ON" position.

After the engine starts, the light will be turned off, if the oil begins to circulate and it becomes the normal pressure.

When the lamp is turned on during operation, stop the engine immediately and carry out the maintenance and repair.



5. Mowing operation

1) Pull up the throttle lever and set engine speed to MAX (2,600rpm). (Refer to 3-17)
2) Set the 2WD - 4WD changeover switch to the "4WD" position. (Refer to 3-14)
3) Set the Travelling-Mowing changeover switch to the "Mowing" position. (Refer to 3-13)
4) Set the reel reverse rotation switch to the "ON" position (Refer to 3-16)
5) Release the Mower lock lever. (Refer to 3-22)
6) Move the mower unit raise/lower lever to the "DOWN" position, and ensure lower the mower unit to the ground. (Refer to 3-18)
7) Move reel rotation switch to the "ON" position, and rotate the reel. (Refer to 3-15)
8) Hold the Forward pedal down and begin the operation.

* Respond to the raising or lowering of the mower unit, the reel will rotate or stop automatically.

⚠ Caution

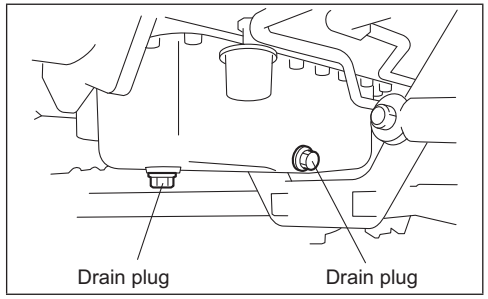
- Be sure to operate by the speed that suited the working condition.
- The machine detects the position of the reel unit and decides "ON" or "OFF" the reel rotation. Keep in mind that the reel rotation may not stop if the mower unit is not fully raised by operating the mower unit raise/lower lever.

6. Maintenance of the main unit

6-1 Change of engine oil

Refer to the engine's instruction manual for handling of the engine.

1) Change the oil after the first 50 hours operation, and change it for every 100 hours operation from the next.
2) Remove drain plug on the oil pan. If it carries out while the engine is warm, the oil can be drained completely.

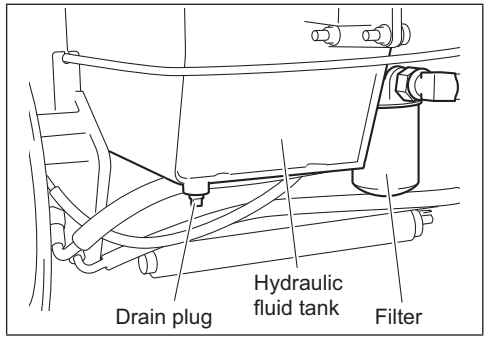


⚠ Caution

- Use the engine oil that has SAE viscosity higher than the API service classification CD class.
- The engine oil is high temperature immediately after the operation. Change it after waiting for a while so that you may not be burned, when removing the drain plug.

6-2 Change of hydraulic oil

1) Change the hydraulic oil after the first 100-hour operation, and change it in the shorter period between the one year and 500-hours operation from the next.
2) Always replace the hydraulic filter when changing oil.
3) Remove the drain plug on the bottom of the hydraulic oil tank, and drain the hydraulic oil.



4) Drain and replace the hydraulic oil if you notice the presence of water or foam in the oil (emulsifying), or contamination (lack of transparency).
5) Use the Shell Tellus 46 or equivalent products for the hydraulic oil.

* The capacity of the hydraulic oil tank is approximately 44Liters.

⚠ Caution

- The hydraulic oil is high temperature immediately after the operation. Change it after waiting for a while so that you may not be burned, when removing the drain plug.

* Do not overfill

6-3 Inspection of oil leak

All of fittings for hydraulic hose, pump, cylinder etc. may loose after 50 hours operation. The fittings should be securely fastened.

* The level sensor is attached to the hydraulic fluid tank.
If the amount of hydraulic oil decreases about 2Liters, the warning alarm (discontinuous sounds) will sound.

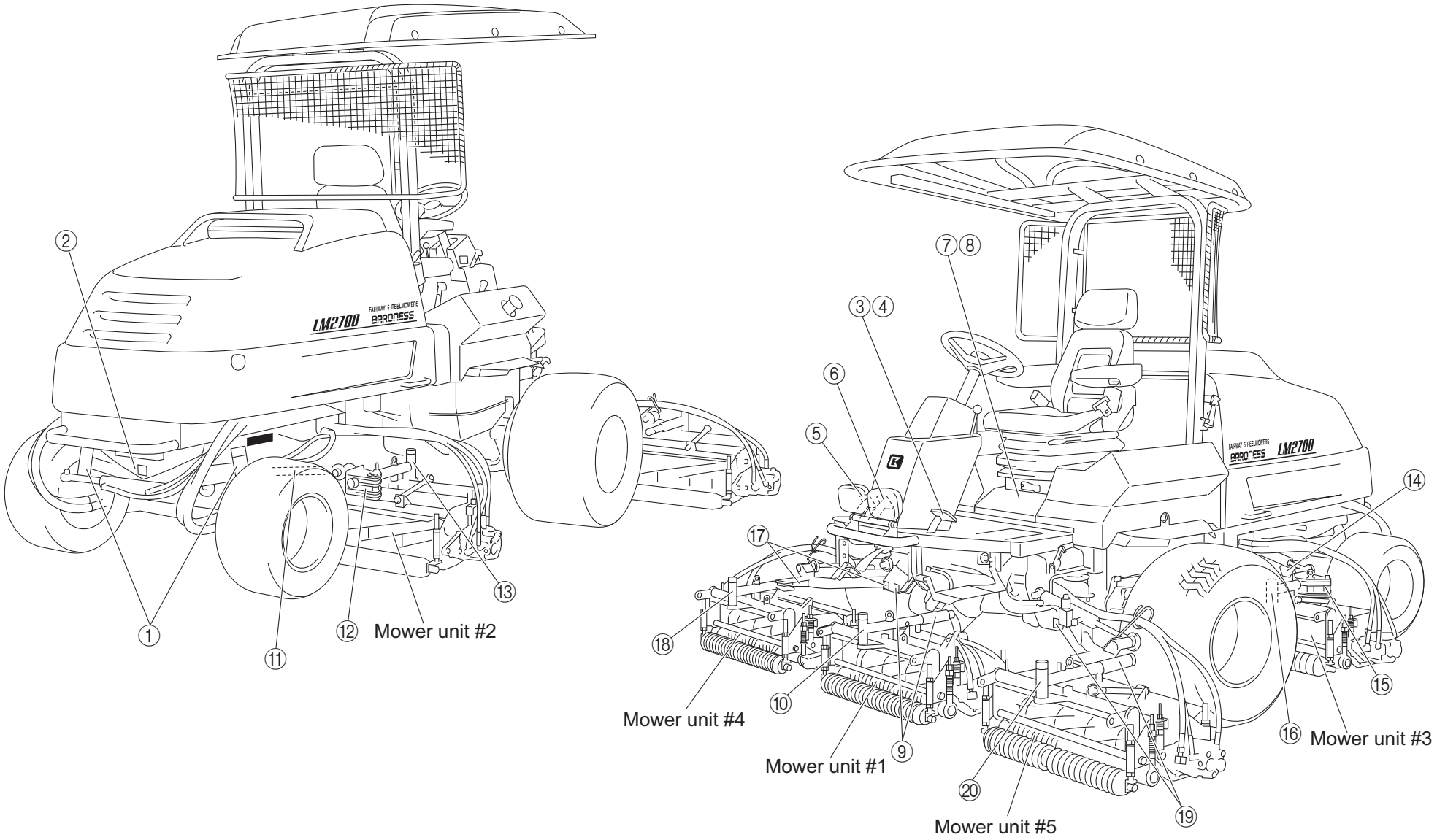
6-4 Greasing each part

Carry out the greasing up to the following grease nipples every 50 hours.

Rear wheel parts			⑩	#1 mower joint fitting	1 place
①	Kingpin	2 places	⑪	#2 lift arm	1 place
②	Pivot	1 place	⑫	#2 rotation fitting	1 place
Pedal parts			⑬	#2 mower joint fitting	1 place
③	Brake pedal	1 place	⑭	#3 lift arm	1 place
④	Brake fitting	1 place	⑮	#3 rotation fitting	1 place
⑤	Forward pedal	1 place	⑯	#3 mower joint fitting	1 place
⑥	Backward pedal	1 place	⑰	#4 lift arm	2 places
⑦	Pump idle lever	1 place	⑱	#4 mower joint fitting	1 place
⑧	Pump neutral lever	1 place	⑲	#5 lift arm	2 places
Lift arm parts			⑳	#5 mower joint fitting	1 place
⑨	#1 lift arm	2 places			

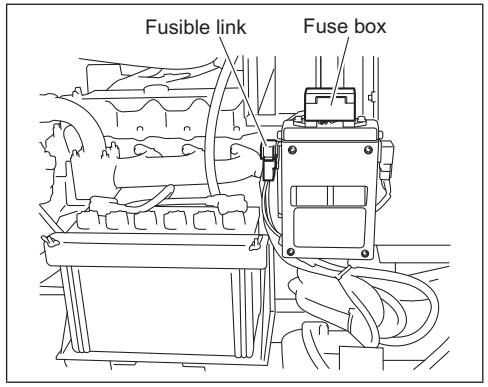
* Refer to the following page for the grease up points of each part.

Grease up positions

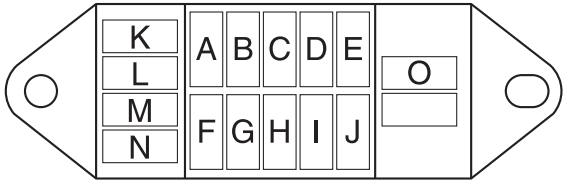


6-5 Replacement of fuses

1) Fuse box.
   The spare fuse and the replacement tool are attached in the fuse box.
   Replace with the fuses of the requirement rated capacity.
   The fuses are mini-fuse for automobiles.
2) Fusible link
   The fuse rated capacity of the fusible link is 50A.



Fuse box



A	5A	Timer
B	5A	Glow lamp
C	5A	Tachometer, fuel gauge, water temperature gauge, charge lamp, oil pressure (engine oil pressure) lamp, Water temperature warning alarm, Hydraulic oil warning alarm
D	15A	Relay box 1
E	15A	Relay box 2, differential lock
F	-	
G	5A	Timer
H	5A	Alternator
I	5A	Fuel pump, cooling-fan valve safety relay, stop solenoid
J	5A	Relay (starter)
K	5A	Spare fuse
L	5A	
M	15A	
N	15A	
O	Fuse replacement tool	

6-6 Inspection of battery

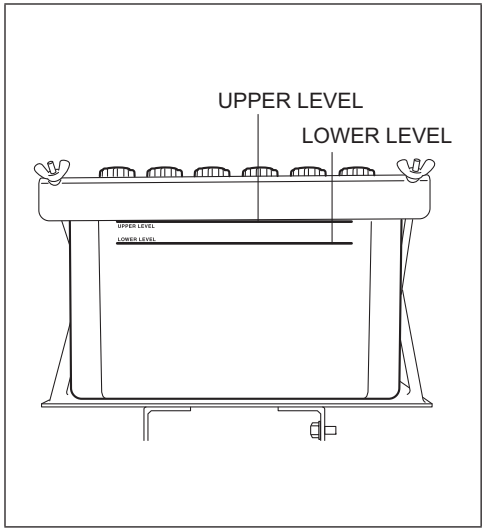
Refer to the Battery's instruction manual.

The machine exported from Japan mounts the battery of refillable type. (FX105D31R)

Inspect and maintenance the battery periodically.

Check the electrolyte level between "UPPER LEVEL" (maximum level line) and "LOWER LEVEL" (minimum level line). When the electrolyte level is falling below to half between "UPPER LEVEL" and "LOWER LEVEL", add the refining water to "UPPER LEVEL" immediately.

The replacement battery (EXIDE 27-60), Baroness recommends to use, is maintenance-free. It may cause injury and accident to refill water in force. Be sure not to maintenance it.

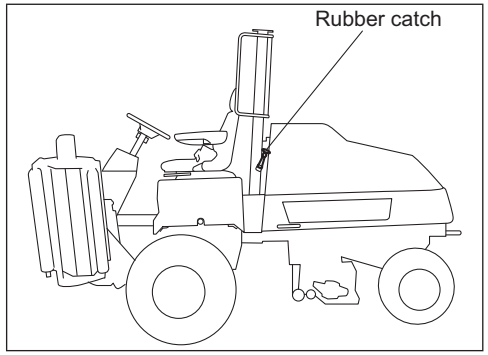


⚠ Danger

- Do not drink electrolyte and avoid contact with skin, eyes or clothing. Wear protective glasses and protective clothes.
- Charging battery, battery generate explosive hydrogen gas as battery electrolyte contains sulfuric acid which is deadly poison and causes severe burns.
- Never smoke near the battery and keep sparks and flames away from it.
- When removing the battery, remove the negative (-) cable first, and positive (+) cable last. Install the battery, assemble the positive (+) cable first and negative (-) cable last.
- When you connect the battery cables, connect the positive and negative side correctly. When you mistake, the battery and the electrical equipment may be damaged. (The red-color cable is the positive side.)
- If a dry cloth is used to clean the battery, the static electricity may occur and there is danger of fire or explosion.

6-7 Opening and closing the engine hood

Disconnect the rubber catch in right and left, and pull up the engine hood upwards until the wire stretches to the limit. When you close the engine hood, lower it slowly.

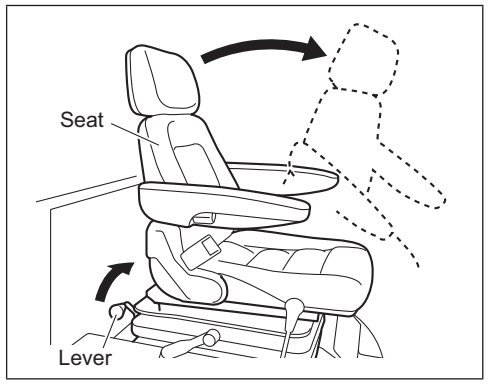


⚠ Caution

- When you close the engine hood, be careful not to pinch your hand.
- Do not open the engine hood at the windy place.

6-8 Opening and closing the seat undercover

Raise the tilt steering column to the upper position first, and then move the seat to the rear end position. Pull up the lever behind the seat to release the lock, and then raise the seat and open the undercover. To close the undercover, lower it slowly.



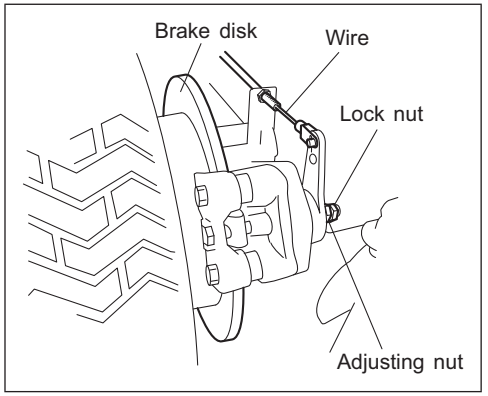
⚠ Caution

- When you close the undercover, be careful not to pinch your hand.

6-9 Adjustment of brake

Carry out the clearance adjustment, if the clearance between the brake disk and brake pad becomes large and effectiveness of the brake disc worsens.

Loosen the lock nut, and tighten the adjusting nut; the clearance will become small. If adjusted to the proper clearance, tighten the lock nut securely. The fine adjustment can be performed with the wire. Be sure to adjust so that effectiveness of the brake disc on either side becomes the same.



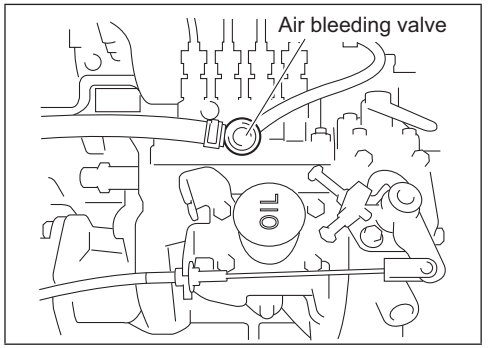
⚠ Danger

- It will generate heat, if the clearance is too small, and it becomes the cause of the fire.
- If effectiveness of the brake disc on either side is different, it may lead to an unexpected accident.

6-10 Air-bleeding from fuel

Since this machine has equipped the automatic air bleeder, the air-bleeding operation is unnecessary.

* Always use the air-bleeding valve with the fully open position.
If it is used in the closed position, it will become the cause of the engine stop.



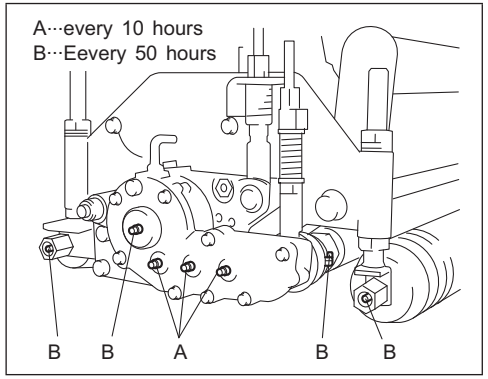
7. Maintenance of the mower

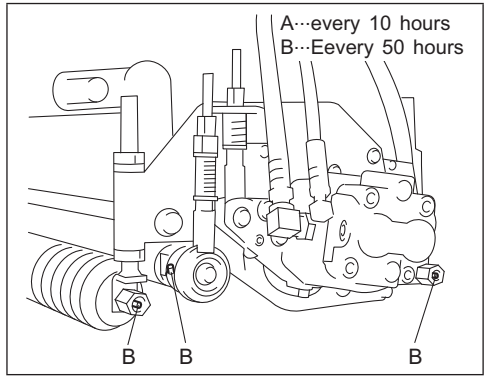
7-1 Greasing

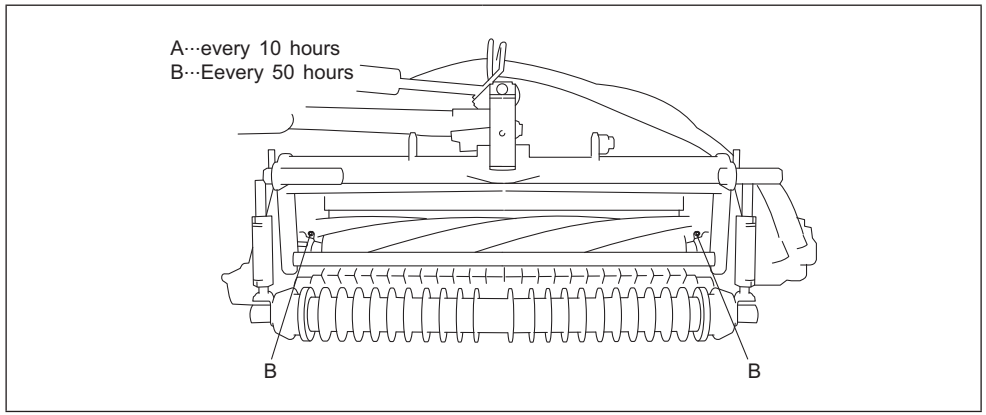
Carry out the greasing up periodically to each part grease fitting.

The parts greasing up every 10 hours is using the needle bearing. Be careful of the lubrication interval.

Carry out about 1g (1 to 2 times with manual-type small grease gun) grease up for each part with the grease (Excelite EP No. 2) respectively.





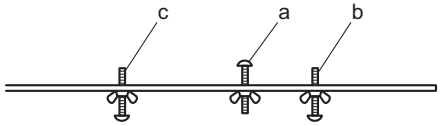


7-2 Cutting height adjustment

Warning

- To avoid personal injury and damage by the cutting edges wear groves and handle the reel and bedknife with extreme care.

1) Set the supplied cutting height gauge bar.

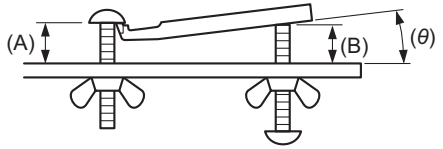


1. Small adjusting screw for the cutting height setting
2. Small adjusting screw for the bed knife angle adjustment
3. Small adjusting screw for the Groomer adjustment

(1) Set the "a" screw to desired cutting height.

(2) Set the included angle of the bed knife with the screw of "b" by referring to the following table.

Example: When the angle of the bed knife is 5 degrees and 15mm of cutting height, use 12mm.



Bed knife angle (θ)	Value of (B)
7°	Cutting height of (A) - 0.6mm
6°	Cutting height of (A) - 1.8mm
5°	Cutting height of (A) - 3.0mm
4°	Cutting height of (A) - 4.2mm
3°	Cutting height of (A) - 5.4mm
2°	Cutting height of (A) - 6.6mm
1°	Cutting height of (A) - 7.8mm

* Set the bed knife angle as the basis of 5 degrees, and change it depending on the situation.

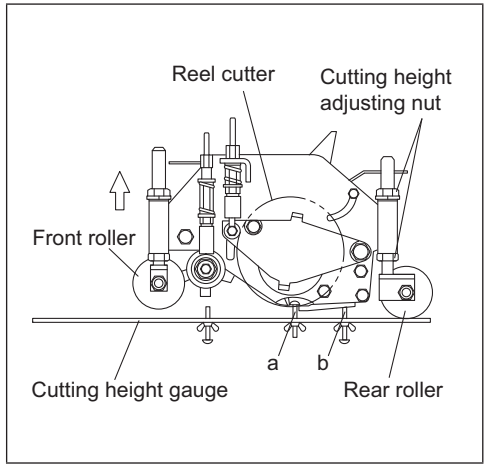
2) Adjust the height of the rear roller.

(1) As shown in the figure, apply the screw "a" and "b" on the cutting height gauge to the bed knife, and adjust the rear roller. (Decide the position of the rear roller on the basis of the bed knife angle.)

(2) Loosen the cutting height adjusting nut first, and then adjust the rear roller according to the cutting height gauge.

(3) At this time, to avoid incorrect adjustment, do not touch the Front Roller on cutting height gauge surface.

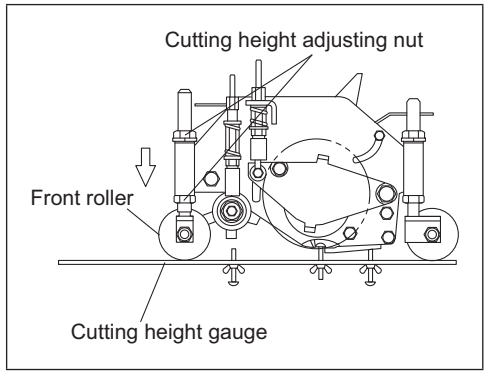
(4) Tighten the cutting height adjusting nut securely after completing the setting.



3) Adjust the height of the front roller.

(1) Loosen the cutting height adjusting nut for the front roller first, and lower the front roller down to the cutting height gauge.

(2) Tighten the cutting height adjusting nut securely after completing the setting.



4) Repeat steps 2) - (2), (3), (4) and 3) - (1), (2) on opposite end. Complete adjustment to one end before adjusting opposite end.

7-3 Adjusting the blades

* Proper reel-to-bedknife adjustment is critical.

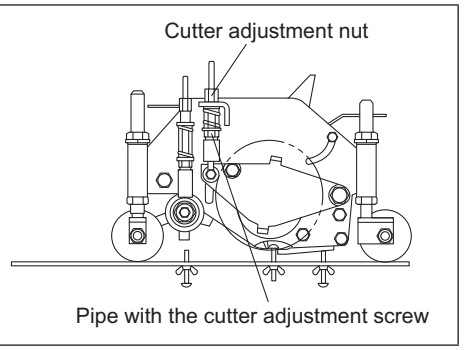
⚠ Caution

- When you adjust reel-to-bedknife, stop the engine and remove the ignition key.

1) Set Bypass valve on hydraulic motor to "Stop" position then reel cylinder will free rotate. (Refer to 3-20)

2) Inspect the reel blade and bedknife to ensure properly engaged. When the reel blade is properly adjusted to the bedknife, the reel cylinder will spin freely and you should be able to cut two sheets of newspaper, along the full length of the reel blade.

If the cutter adjustment nut is loosened, contact between the reel and bedknife become hard, and contact will become weak if it is tightened.



3) If no newspaper cutting due to wear or damage is evident, the cutting edges should be corrected by the lapping process.

4) If the reel cutter is worn out and the diameter becomes small, the tension of the spring will become weak. Loosen the pipe with the cutter adjustment screw, and adjust the tension of the spring.

⚠ Danger

- Both the reel cylinder and bed knife are the cutting tools. When you handle with them, be careful of injury.
- When you try cutting the newspaper, be careful not to pinch your fingertip, which turns the reel cutter.
- Before doing this work, be sure to apply the parking brake firmly.
- Do not carry out in two-person operation.

7-4 Lapping

1) Inspect whether the newspaper can cleanly cut across the full length of reel.
2) Set the bypass valve lever of the hydraulic motor into the "Rotation" position on the lapping mower unit. Set bypass valve lever of the hydraulic motor into "Stop" position on the mower unit, which does not carry out lapping.
3) Lower all the mowing unit to the ground, then stop the engine.
4) Open the hood and reel-reverse-rotation switch to "ON". (Refer to 3-16)
5) Sit on the seat, engage the parking brake, start the engine and then adjust rotation of engine to low speed.
6) Set the reel rotation switch into the "ON" position, and carry out the lapping rotation of the reel blade. (Refer to 3-15)
7) Adjust reel rotation adjusting valve to the desired speed. (Refer to 3-21)
8) Apply lapping compound with brush to the part where a newspaper was cut.
   (Never apply lapping compound to the part where was not cut well.) Use lapping compound which is a mixture of oil and emery (#150 - #200) at rate of 1:3 to 4.
9) Rotate the reel cutter for a while, if there is no longer contact sound, stop the rotation, and then stop the engine.
10) Check full length of the reel cutter whether there are the parts that cut off the newspaper well, and the parts that don't cut the newspaper. Repeat the above steps and at the same time, make a slight adjustment on the reel unit there is a uniform clearance along full length of the cutting edges.
11) Finally apply lapping compound to full length on the edge of each blabe of the reel cutter, and carry out final lapping.
12) When finished, carefully and thoroughly clean off the remaining lapping compound.
13) Return the reel rotation adjusting valve to the original position.

⚠ Danger

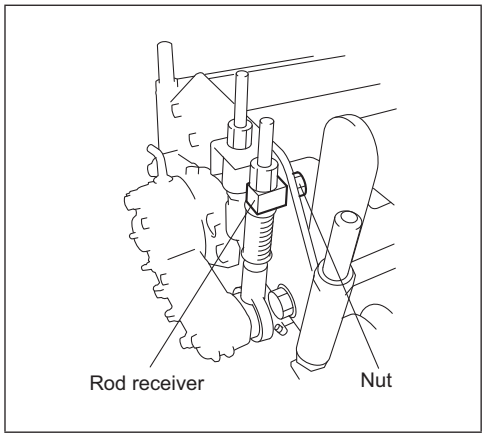
- Both the reel cylinder and bed knife are the cutting tools. When you handle with them, be careful of injury.
- When you try cutting the newspaper, be careful not to pinch your fingertip, which turns the reel cutter.
- Before doing this work, be sure to apply the parking brake firmly.
- Do not carry out in two-person operation.

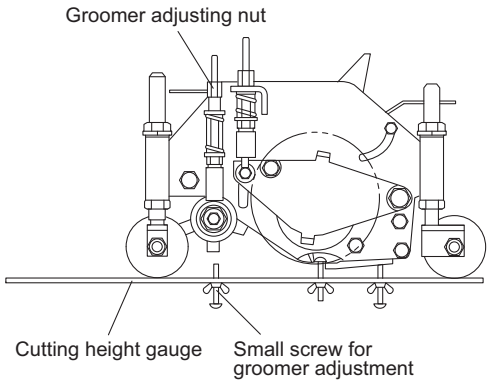
⚠ Caution

- When you wash the abrasive, be careful not to pour water to the Electrical equipment and the switches.
  If they become wet, it may cause unexpected accident.

7-5 Adjustment of the groomer (option)

1) Set the small adjusting screw for groomer adjustment on the cutting height gauge to the specified height. (Refer to 7-2)
2) Loosen the rod receiver nut, and lower the whole groomer unit to the bottom of the long hole.
3) Tighten the rod receiver nut, and adjust the height of the groomer with the adjusting nut for the groomer.
4) When you do not use the groomer, raise the whole groomer unit to the top of the long hole.



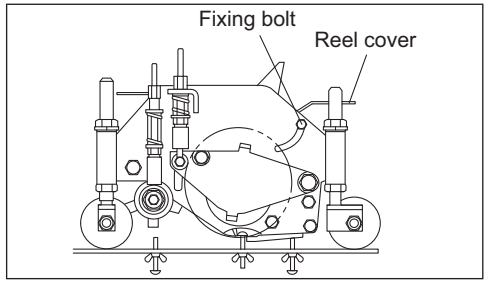


⚠ Caution

- Always use the cutting height gauge, and adjust it so that right and left sides become parallel. The bearings may be damaged if it is not used.
- Set the groomer height more than 5mm from the ground. If it is used by less than it, the groomer axis, bearing, and gear, etc. may be damaged.

7-6 Adjustment of the reel cover

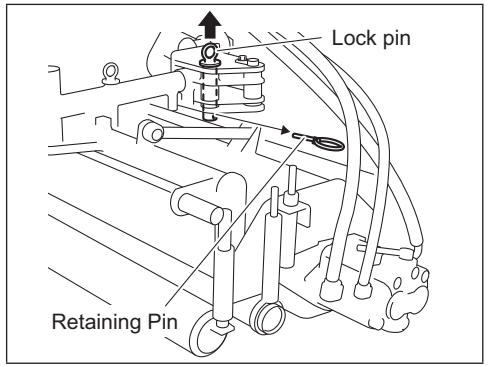
- Loosen the fixing bolts on the right and left sides of the reel cover, and adjust the angle of the reel cover.
- When you use the optional grass catcher, set the reel cover housing in the most closed position.



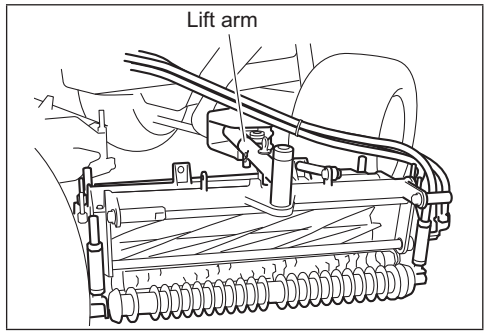
7-7 Turning the #2 and #3 mower units

It is easily maintainable, to turn the #2 and #3 mower unit turn to outside of the main body.

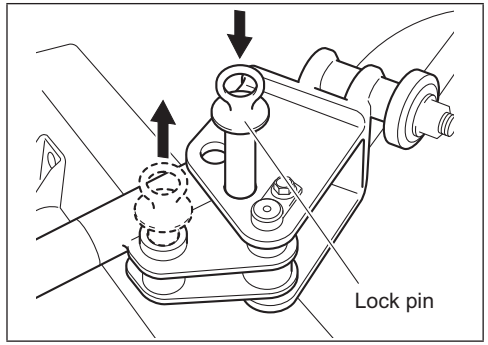
1) Lower the mower unit, and remove the Retaining pin, and then pull out the Lock pin.



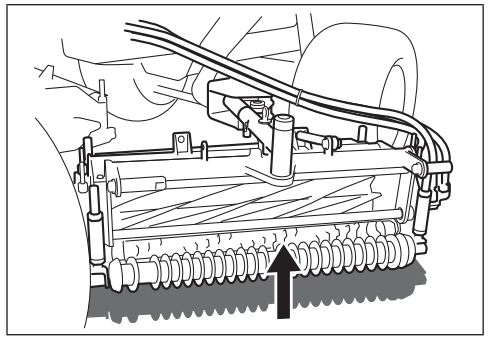
2) Turn the mower unit to outside of the main body.



3) After turning, install the lock pin over the hole to retain the mower in the maintenance position.



4) Raise the mower unit.



5) Return the mower unit to the original state in the reverse procedure after the maintenance.

⚠ Caution

- Replace all the bearings, oil seals for mower unit every year.
- The hydraulics motor housing with the hydraulic motor is filled up with the lubricating grease (PYRONOC No. CC0).
  Check and supply grease every 200 hours.

⚠ Danger

- Both the reel cutter and bed knife are the cutting tools.
  When you handle with them, be careful of injury.

8. Cautions for maintenance

⚠ Caution 8-1 Cautions for maintenance

- Read this manual carefully and have full knowledge of the maintenance procedure.
- Stay the machine on a flat, clean and dried place.
- Never lubricate or maintenance when the machine is in motion.
- Keep hands, feet away from drive/moving parts.
- For the maintenance of drive/moving parts, be sure to exercise caution lest hands and feet should be caught up.
- Disengage all the drives, operate each control and release pressure.
- Use correct/appropriate parts in good condition.
- Repair or replace worn or damaged parts immediately.
- Do not modify any mechanical equipments/parts. Use Baroness genuine parts required for maintenance for safety.
- Clean up grass and debris, oil/grease or fuel spillage.
- Make sure to disconnect the negative (-) battery cable before maintaining the electric circuit.
- When you maintain with the machine raised, carry out the safe support securely.
- Please dispose in accordance with the local law about disposal of waste oil and unnecessary replacement parts.

⚠ Warning 8-2 Prevention of the damage caused by high-pressure oil

- When high pressure oil is injected to the skin, get seriously injured.
- Eliminate the pressure before removing the high-pressure line, hose and coupling.
- Check all the joint fastenings before operating the machine.
- Use the paper or cardboard for the test of oil leak. If hydraulic oil is injected into the skin, be sure to have medical treatment by doctor within 2 to 3 hours.

8-3 Maintenance schedule

◆ Use the required tools suitable for the purpose of the maintenance.

	Maintenance	Before use	Every 50hrs	Every 100hrs	Every 200hrs	Every 500hrs	Every 6 months
Engine	Inspection of engine oil	○					
	Change of engine oil		○ (Initial operation)	○			
	Replacement of oil filter		○ (Initial operation)	○			
	Cleaning of radiator and oil cooler	○					
	Inspection of coolant	○					
	Inspection and cleaning of air filter	○					
	Replacement of air filter element				○		
	Inspection of fan belt	○					
	Inspection of battery electrolyte						○
	Replacement of fuel filter					○	
Main body	Inspection of tires	○					
	Inspection of fuel	○					
	Inspection of hydraulic oil	○					
	Replacement of hydraulic oil			○ (Initial operation)		○	
	Replacement of oil filter			○ (Initial operation)		○	
	Inspection of brake	○					
	Oil leakage of each part	○					
	Inspection of slack or damageon each part	○					
	Grease up (main unit and mower) (Refer to 6-4 7-1)		○ (partially every 10hrs)				
	Inspection of grease in the hydraulic motor housing				○		
	Contact condition of the blades on reel cutter.	○					
	Remove adhesion of cutting grass, etc.	○					

<Specifications for periodic maintenance>

Engine oil capacity	MAX: 9.7 L MIN: 7 L	Higher than the API service classification CD class
Coolant capacity	Total capacity 12 L	Including 1 L in reserve tank
Tire pressure (standard tire)	Front tire 150 kPa ($1.5kgf/cm^2$)	
	Rear tire 140 kPa ($1.4kgf/cm^2$)	
Fuel tank capacity	Approximately 51 L	Diesel JIS2 type
Oil tank capacity	Approximately 44 L	Use the Shell Tellus 46 equivalent

<Wear parts lists for the engine, hydraulic system>

For engine

Parts name	Code No.
Oil filter element	PF16414-3243-0
Air filter element	PFR1401-4227-0
Fan belt	PF17112-9701-0
Fuel filter cartridge	PF15221-4317-0
Battery	K3600000180 (equipped on Mchine originally) K3600000250 (for replacement)
Throttle wire	LM2700-0535Z0

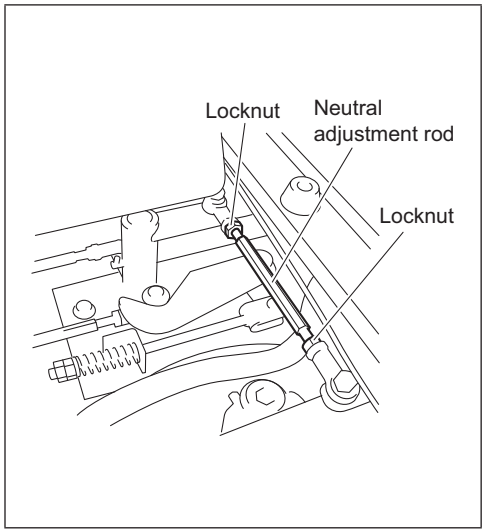
For hydraulics system

Parts name	Code No.
Oil pressure filter cartridge	K3410000030
Air filter element	K3413000040

9. Adjustment of the other functions

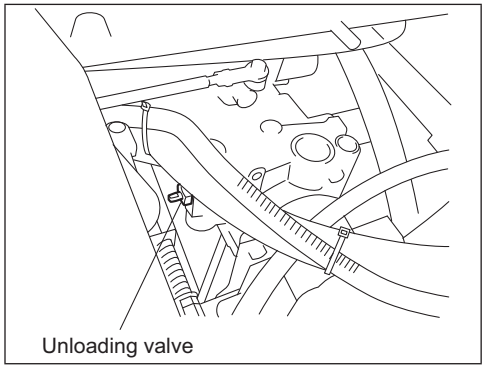
9-1 Adjustment of the neutral position of piston pump

1) Jack up the machine and put on a stable stand, and float the front and rear wheels.
2) Raise the seat upwards.
3) Start the engine and run at high speed, and put the 2WD-4WD changeover switch into "2WD".
4) When the front wheel rotates in the forward direction, loosen the locknut and turn in the direction that reduces the length of the neutral adjustment rod. When rotating in the backward direction, turn in the direction that extends the length of the neutral adjustment rod. Find the position at which the front wheel stops and tighten the locknut.



9-2 Traction when the machine is unable to travel

1) When the engine is running, stop the engine.
2) Apply the parking braking and attach a wheel stopper.
3) Set the 2WD-4WD changeover switch into "2WD".
4) Raise the seat upward.
5) Turn 90 degrees of the unloading valve beside the hydraulic pump.



⚠ Caution

- When you tow, drive carefully at a low speed.
- When you put the engine into operation next time, be sure to start after returning the unloading valve.

10. Long-term storage

- Please refer to the Engine/Battery operation manuals for details.

1. Clean up dirt, grass and oil spot etc.
2. Inspect and replace the engine oil and air filter element.
3. Refill oil and apply lubricating/greasing to each lubrication part.
4. Empty the fuel tank and keep the mower away from ignition sources when storing the mower indoors where sparks and open flames are used.
5. Set the air pressure in the tires slightly higher than normal, place the machine on a board to avoid humidity.
6. Inspect all bolts, nuts and screws tightened. If loose or missing, tighten or repair them.
7. Repair or replace damaged parts and paint peelings.
8. Store the machine in the place where is dry and prevent exposure to rain.
9. Remove the battery and ignition key from the mower. If you keep the battery installed in the machine, disconnect the ground battery cable (negative side).
10. When storing the machine, lower the cutting units. In case to store the machine with raising the outermost #4 & #5 mowers, be sure to latch them.

11. Scrap the Machine

When you scrap the machine, obeying the domestic law and regulation.
(For example: waste oil, rubber goods, anti-freeze, battery wire, etc)

EC Declaration of Conformity

We

Manufacture's Name:	Kyoeisha Co., Ltd.
Manufacture's Address:	1-26 Miyuki-cho, Toyokawa, Aichi-pref. 442-8530 Japan

declare that

Product:	Ride-on Lawnmower
Make:	BARONESS
Type:	LM2700
Starting Serial No.:	10348

compiler of the technical file

Name:	Kyoeisha U.K.Ltd.
Address:	Unit 5 Hatch Industrial Park Grewell Road,Basingstke Hampshire RG24 7NG, the United Kingdom

in accordance with the following Directives :

2006/42/EC	The Machinery Directive and its amending directives

has been designed and manufactured using the following specifications :

ISO12100-1 : 2003
ISO12100-2 : 2003
EN836 : 1997
ISO5395 : 1990

References of other Community Directives applied
2000/14/EC 、 2004/108/EC

Place: Japan
Date : November 4 2010

Signature : M. Nakazawa
Name : Masahisa Nakazawa
Position : Quality Dept. Manager

Manufacturer's Declaration of Conformity for

Product Identification	
Product :	Ride-on lawnmower
Make :	BARONESS
Type :	LM2700
Version(s) :	Not Applicable
Starting Serial No. :	10348
Measured Sound Power Level :	LWA 99.84 dB
Guaranteed Sound Power Level :	LWA 103 dB
Manufacturer	
Name :	Kyoeisha Co., Ltd.
Address :	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan
Technical Documentation	
Keeper's Name :	Kyoeisha Co., Ltd.
Keeper's Address :	1-26 Miyuki-cho, Toyokawa, Aichi-pref., Japan
Conformity Assessment Procedure :	Internal Control of Production with Assessment of Technical Documentation and Periodical Checking (Annex VI) of 2000/14/EC-2005/88/EC
Involved Notified Body	
Name :	SNCH
Address :	11, Route de Sandweiler 5230 Sandweiler Luxembourg
Technical Construction File	
Date :	May 7, 2009
Technical Construction File No. :	TC2700-01
Test Laboratory	TUV Rheinland Luxemburg GmbH 2a, Kalchesbruck L-1852 Luxembourg
Certificate / Report No. :	SNCH*2000/14*2005/88*1355*01/TC2700-01

Means of conformity

The product is in conformity with the Directive relating to the noise emission in the environment by equipment for use outdoors 2000/14/EC-2005/88/EC, in accordance with Article 12 of the Directive.

References of other Community Directives applied

2006/42/EC , 2004/108/EC

Signature : M. Nakazawa

Masahisa Nakazawa
Manager
Quality Dept.
Kyoeisha Co., Ltd.

Date : November 4, 2010

KYOEISHA CO.,LTD.

Head Office 1-26, Miyuki-cho, Toyokawa,
Aichi-Pref. 442-8530 Japan.

BARONESS
Turf Care Machinery
Tel: (0533) 84-1390
Fax: (0533) 89-3623

LM2700--UM--GBZ/10L-00-SPEC